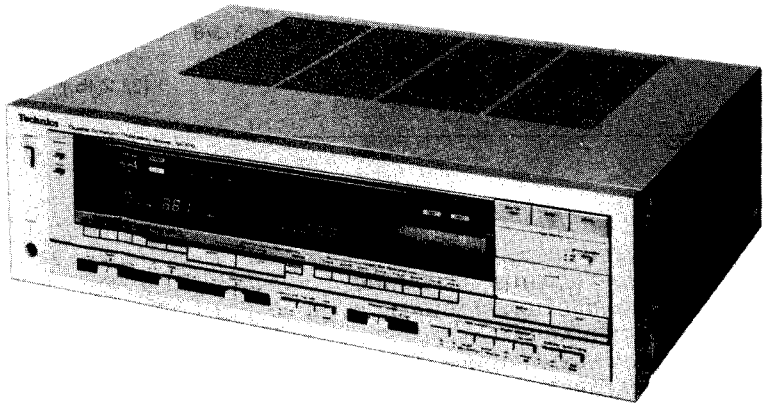
ORDER NO. SD83062585C1

Service Manual

QUARTZ Synthesizer FM/AM Stereo Receiver

SA-1010

[M], [MC]



Areas

* [M] is available in U.S.A.
* [MC] is available in Canada.

Specifications

(Specifications are subject to change without notice for further improvement.)

■ AMPLIFIER SECTION

Rated minimum sine wave RMS power output
20 Hz~20 kHz both channels driven
0.003% total harmonic distortion
120W per channel (8 ohms)

1 kHz continuous power output both channels driven 0.003% total harmonic distortion	125W per channel (8 ohms)
Dynamic headroom	1.1 dB (8 ohms)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.003% (8 ohms)
half power at 20 Hz~20 kHz	0.003% (8 ohms)
half power at 1 kHz	0.001% (8 ohms)
SMPTE intermodulation distortion	0.01% (8 ohms)
Frequency response	
PHONO	RIAA standard curve ±0.2 dB
AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT	3 Hz~100 kHz, −3 dB
Input sensitivity	
PHONO MM	0.23 mV (2.5 mV, IHF '66)
MC	14 μV (150 μV, IHF '66)
AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT	14 mV (150 mV, IHF '66)
S/N (IHF, A)	
PHONO MM	73 dB (87 dB, IHF '66)
MC	72 dB (70 dB, 250 μV INPUT '66)
AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT	75 dB (90 dB, IHF '66)
Maximum input voltage	
PHONO MM	150 mV (170 mV, 1 kHz)
MC	10 mV (10 mV, 1 kHz)
Input impedance	
PHONO MM	47 kilohms
MC	47 ohms
AUX/CD/VIDEO, GRAPHIC EQ, TAPE 1, 2/EXT	15 kilohms
Tone controls	
BASS	50 Hz, +10 dB~ −10 dB
TREBLE	20 kHz, +10 dB~ −10 dB
Subsonic filter	30 Hz, −6 dB/oct.
High filter	7 kHz, −6 dB/oct.
Loudness control (volume at −30 dB)	50 Hz, +9 dB
AF muting	−20 dB
Low frequency damping factor	56 (8 ohms) 28 (4 ohms)
Load impedance	
MAIN or REMOTE	4~16 ohms
MAIN and REMOTE	8~16 ohms

■ FM TUNER SECTION

Frequency range	87.9~107.9 MHz
Sensitivity	10.8 dBf (1.9 μV, IHF '58)
50 dB quieting sensitivity	
MONO	13.7 dBf (2.7 μV IHF '58)
STEREO	37.2 dBf (39.7 μV IHF '58)
Total harmonic distortion	
100 Hz	0.05% (MONO), 0.15% (STEREO)
1 kHz	0.05% (MONO), 0.08% (STEREO)
6 kHz	0.1% (MONO), 0.15% (STEREO)
S/N	
MONO	78 dB
STEREO	72 dB
Frequency response	20 Hz~15 kHz, +0.2 dB, −0.8 dB
Alternate channel selectivity	
normal	55 dB (±400 kHz)
super narrow	80 dB (±300 kHz)
super narrow	25 dB (±200 kHz)
Capture ratio	1.0 dB
Image rejection at 98 MHz	80 dB
IF rejection at 98 MHz	100 dB
Spurious response rejection at 98 MHz	100 dB
AM suppression	55 dB

Technics

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Carolina, Puerto Rico 00630

Stereo separation	
1 kHz	60 dB
10 kHz	45 dB
Carrier leak	
19 kHz	−70 dB
38 kHz	−80 dB
Antenna terminals	300 ohms (balanced) 75 ohms (unbalanced)

■ AM TUNER SECTION

Frequency range	530~1620 kHz
Sensitivity	20 μV, 300 μV/m
Selectivity	55 dB
Image rejection at 1000 kHz	40 dB
IF rejection at 1000 kHz	40 dB

■ GENERAL

Power consumption	430W, 550 VA
Power supply	AC 120V, 60 Hz
Dimensions (W×H×D)	530 × 162 × 370 mm (20-14/16" × 6-3/8" × 14-9/16")
Weight	14.6 kg (32.2 lb.)

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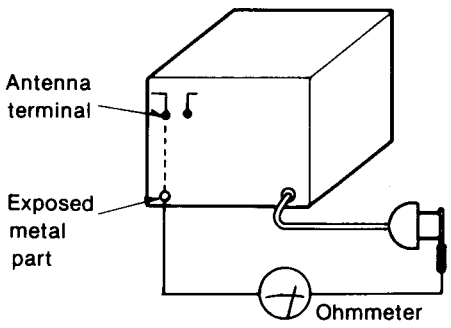
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

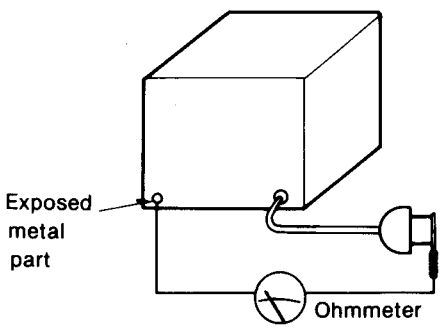
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ

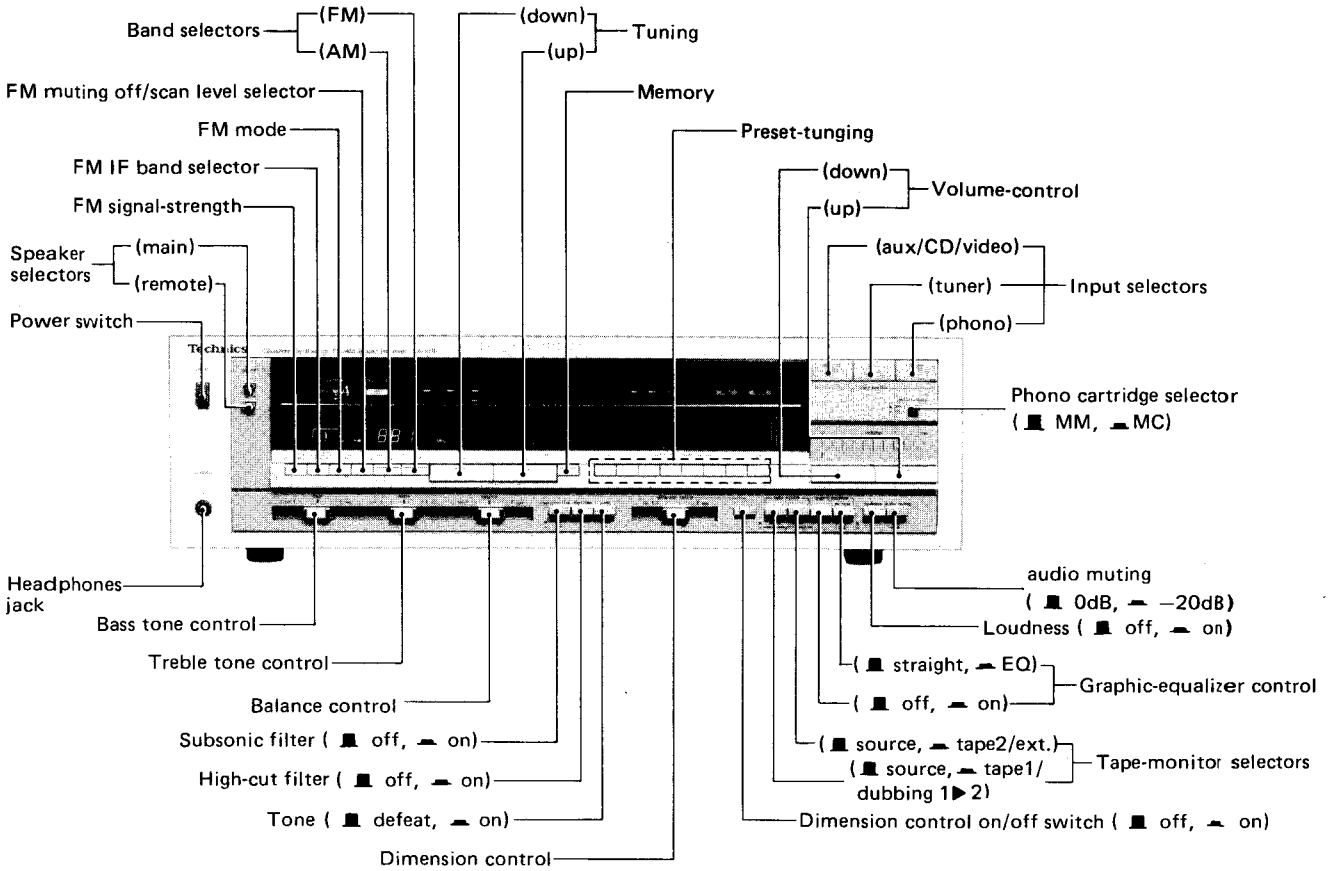


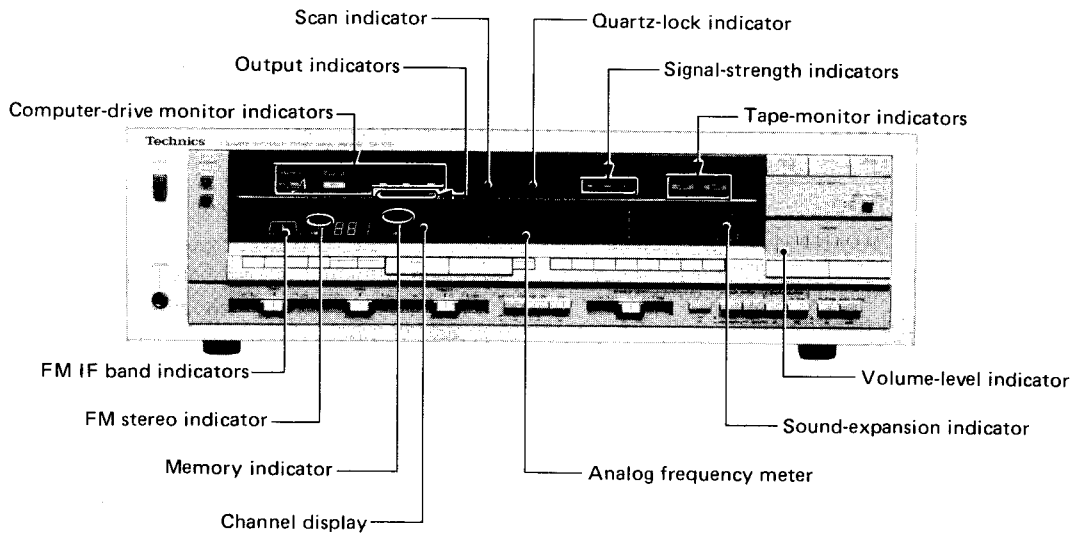
(Fig. B)

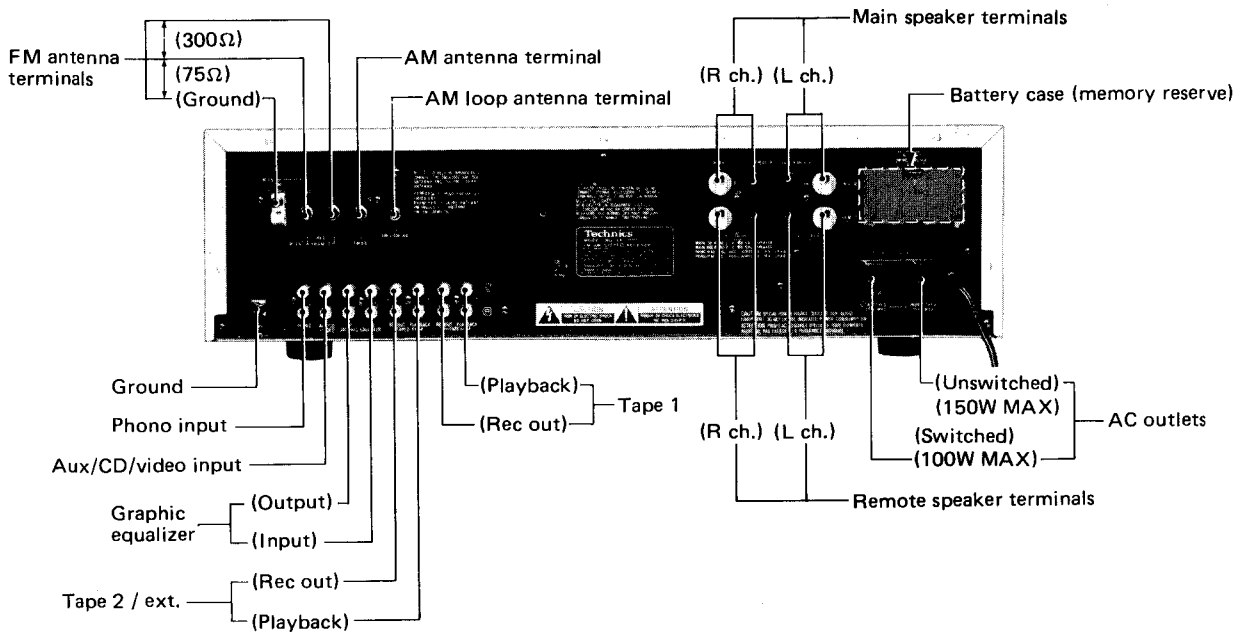
Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ LOCATION OF CONTROLS



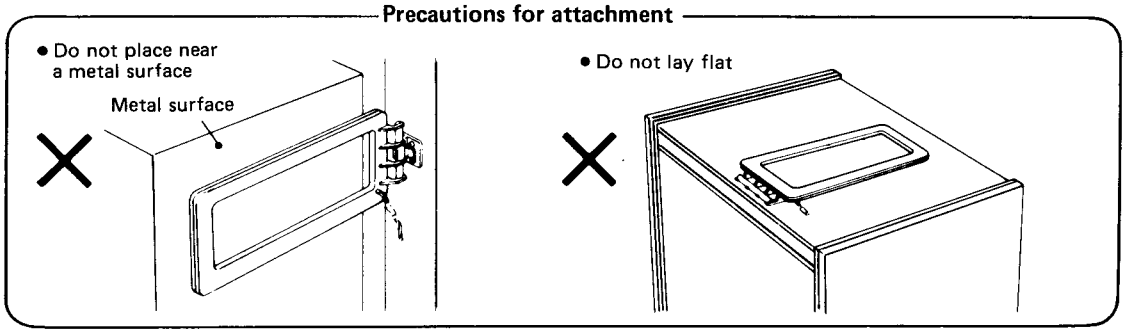




*** Phono input capacitance is about 150pF.**

■ AM LOOP ANTENNA

When the AM loop antenna is connected to the rear panel, place it as far away from the set as possible to improve the sensitivity.



■ PROTECTION CIRCUITRY

The protection circuitry may have operated if eigher of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlined below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again

Note:

When the protection circuitry functions the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power supply and short-circuit of power supply capacitors (C702, C703, 15000μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Do not short between C702 and C703 by screwdriver. It may damage the component.
2. Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current is free of abnormality. The consumed current at 120V, 60Hz in no-signal mode is 350 ~ 800mA.

■ HOW TO OPERATE

• Preset radio broadcast frequencies

This unit is used to preset as many as 16 radio broadcast frequencies: FM/AM random presetting. After broadcast frequencies have been preset as described below, any desired station can be quickly and easily selected by simply touching one button.

• Memory presetting

There are two types of memory presetting: automatic and manual. Select whichever is preferred.

1. Automatic presetting:

Beginning at the frequency indicated by the digital display, the FM broadcasting stations and AM broadcasting stations will be automatically preset to "channels" 1 through 8 for FM and 9 through 16 for AM, respectively.
Note that in mountainous or remote areas, broadcasting stations which have weak broadcasting signals cannot be automatically preset into the memory.

2. Manual presetting:

Stations can be freely preset to any desired channel.

Before memory presetting

Each button is used to preset two stations.

Front channels	Back channels
Presetting front channels (CH 1~8)	Presetting back channels (CH 9~16)
Press momentarily.	Press slightly longer.

• Automatic memory presetting

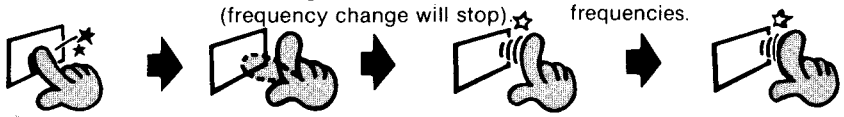
1 Power: "on" (■→▲)
(The volume level is automatically set to "1".)

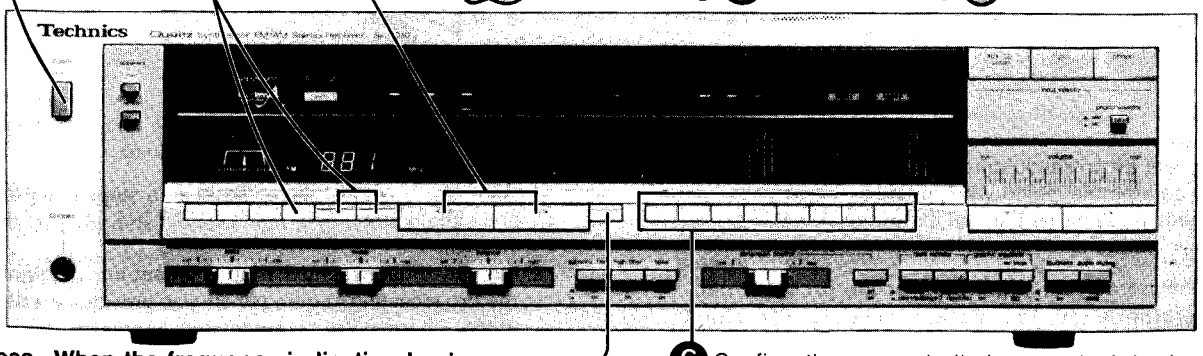
2 • **To preset an FM station: press the "FM" button.**
• **To preset an AM station: press the "AM" button.**

3 Set the stop signal level of the FM broadcast station which can be preset in the memory.
Press and hold the button. (Will change to dB indication.) Release the button when the desired scan level indication (20, 30, 40 or 50 dB) is displayed. A broadcast signal stronger than the set level is memorized.

4 • **To preset FM broadcasting stations: Set to 87.9 MHz.**
• **To preset AM broadcasting stations: Set to 530 kHz.**
Note:
Set the volume level to the minimum ("0") position if noise is excessive.

① Press the button and hold slightly (frequency will change continuously).
② Release it at 87.9 MHz for FM or 530 kHz for AM, and then press the button again momentarily (frequency change will stop).
③ Press the button momentarily (frequency will change each time the button is pressed), and tune to one of the above frequencies.





5 Press. When the frequency indication begins to change, release.

(The frequency will change upward, and stations are memorized beginning with the lowest frequency.
Note that the channel indicator illuminates each time a broadcast station is preset in the memory, thus indicating which "channel" has been preset.)

6 Confirm the names (call signs, etc.) of the broadcasting stations which are preset to each channel,

To check the front channels (CH 1~8):
Press momentarily.

Frequency stored in the memory and channel number are displayed.

To check the back channels (CH 9~16):
Press slightly longer.

Frequency stored in the memory and channel number are displayed.

Notes:

1. In areas where there are less than 8 FM stations, the remaining channels (through channel 8) will be left empty. The empty channels can be filled by using manual memory presetting.
2. If a new broadcasting station is preset into a channel, the broadcasting station which was previously entered in that channel will be automatically erased.

• Manual memory presetting

1 Power: "on" (⏻→⏻)
(The volume level is automatically set to "1".)

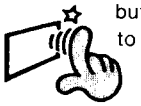
2 To preset an FM station: press the "FM" button.
To preset an AM station: press the "AM" button.

3 Set the stop signal level of the FM broadcast station for automatic tuning.
Press and hold the button. (Will change to dB indication.)
Release the button when the desired scan level indication (20, 30, 40 or 50 dB) is displayed.

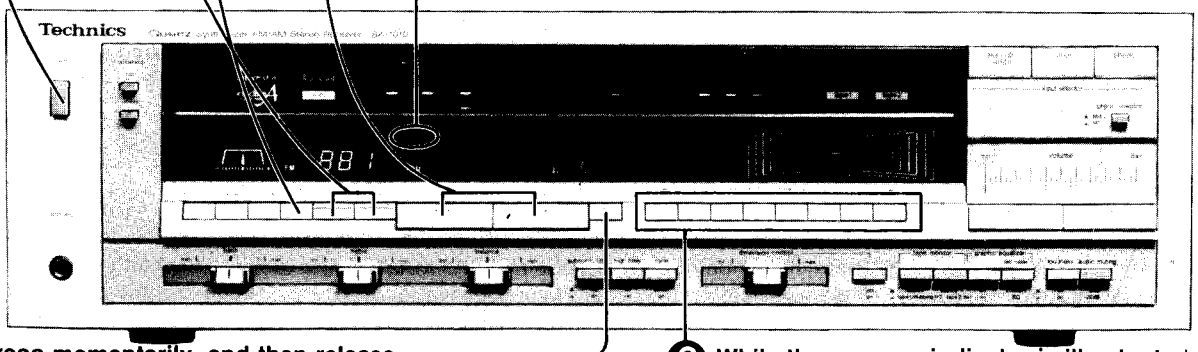
4 Press the appropriate tuning button to tune to the desired broadcast.

- **Auto tuning**
  Press the button. When the frequency indication begins to change, release the button (a broadcasting station will be selected automatically). Repeat this operation until the desired station is found.

- **Manual tuning**
  Press the button momentarily (the frequency will change each time the button is pressed) and tune to the desired station.



● Memory indicator



5 Press momentarily, and then release.

(The memory indicator will illuminate for approximately 4 seconds.)
Note:
If the button is pressed continuously, the frequency will begin to change, and the memory will be preset automatically.
In order to stop the memory presetting, once again press either the "up" button or the "down" button.

6 While the memory indicator is illuminated, press the button of the desired channel.

- **To preset channels 1 through 8:**

Press the button momentarily, and then release. (Preset channel number is displayed on the channel display.)

- **To preset channels 9 through 16:**

Press the button slightly longer, and then release. Preset channel number is displayed on the channel display.)

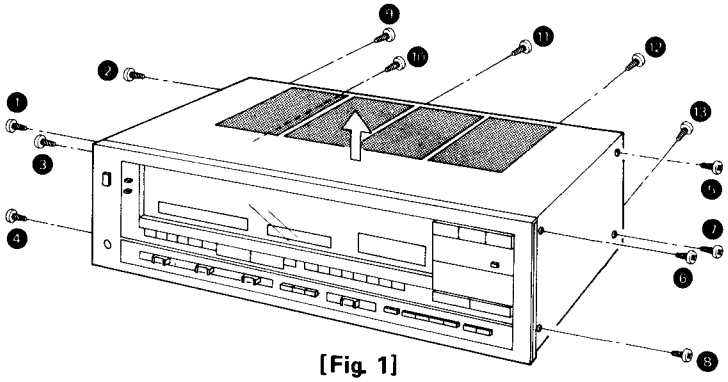
Note:
1. If the memory indication illumination stops before you press the button, once again repeat step (5) and then step (6).
2. If a new broadcasting station is preset into a channel, the broadcasting station which was previously entered in that channel will be automatically erased.

7 Enter the name (call sign, etc.) of the preset broadcasting station on the station memory file sheet (above).

■ DISASSEMBLY INSTRUCTIONS

• How to remove the cabinet

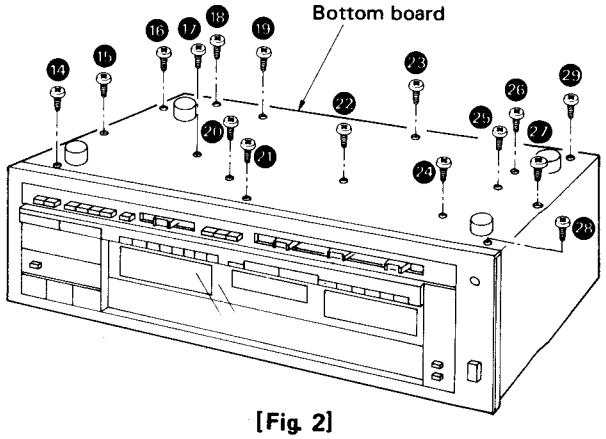
1. Remove the 8 setscrews [Fig. 1 : ❶ ~❽] on the right and left sides of the cabinet, and the 5 setscrews [Fig. 1 : ❾ ~ ⓭] on the rear panel.
2. Remove the cabinet by lifting it in the direction of the arrow.



[Fig. 1]

• How to remove the bottom board

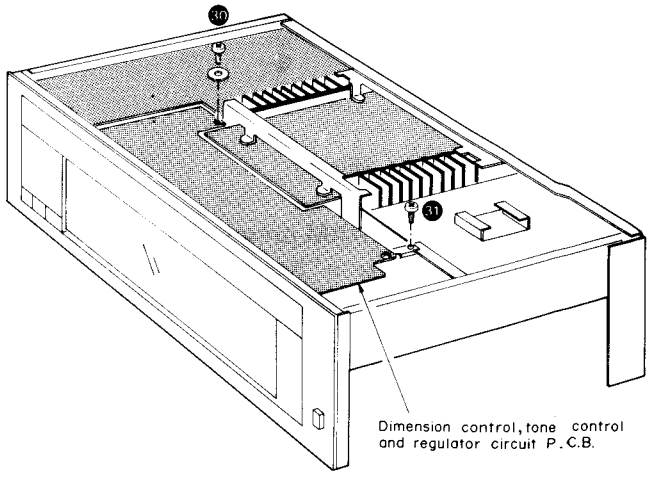
1. Remove the 16 setscrews [Fig. 2 : ⓮ ~ ㉙] on the bottom board.



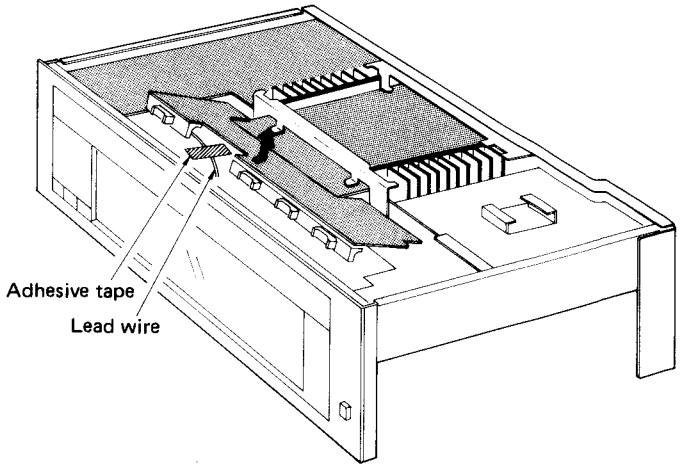
[Fig. 2]

• How to remove the front panel

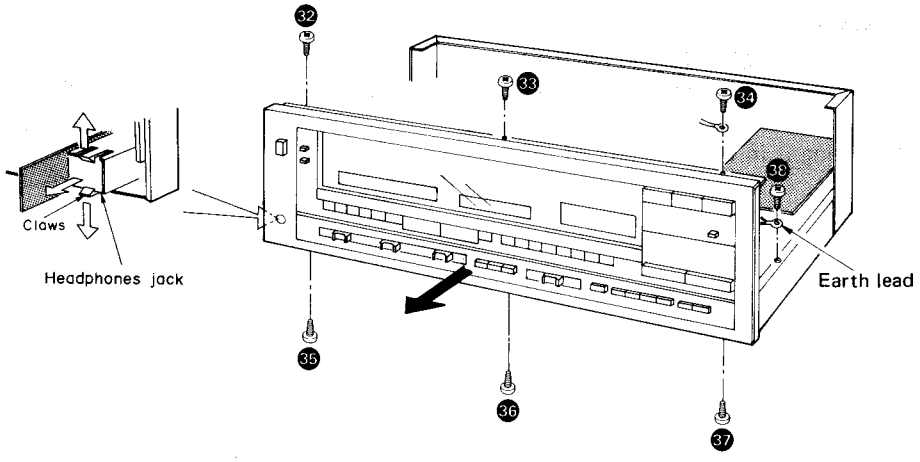
1. Remove the cabinet and bottom board. (Refer to "**How to remove the cabinet and bottom board**".)
2. Remove 2 setscrews [Fig. 3 : ㉚ , ㉛] which secure the dimension control, tone control and regulator circuit P.C.B. And remove the P.C.B. in the direction of the arrow in Fig. 4. Next, remove the adhesive tape which fastens the lead wire to the shield plate.
3. Remove 6 setscrews [Fig. 5 : ㉜ ~ ㊲] which secure the front panel, and the earth lead setscrew [Fig. 5 : ㊳].
4. Release the claws as shown from inside the front panel to remove headphones jack.
5. Slightly pull out the front panel, and remove the earth lead setscrew [Fig. 6 : ㊴] and the analog frequency meter.
6. Remove 4 setscrews [Fig. 6 : ㊵ ~ ㊸] which secure the input selectors and volume-level indicator circuit P.C.B. Then the front panel can be removed.



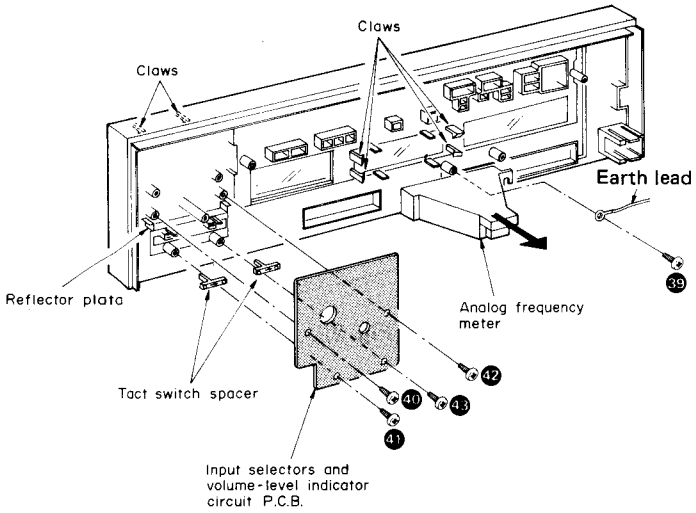
[Fig. 3]



[Fig. 4]



[Fig. 5]



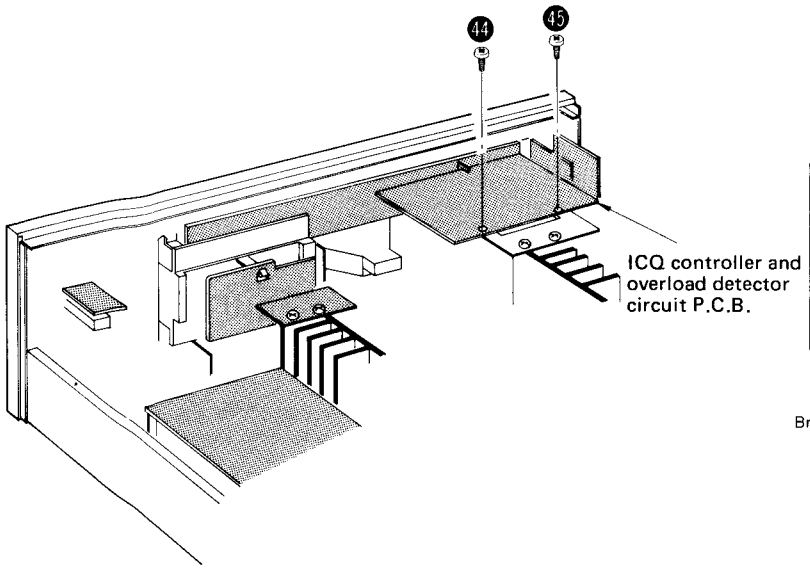
[Fig. 6]

Note:

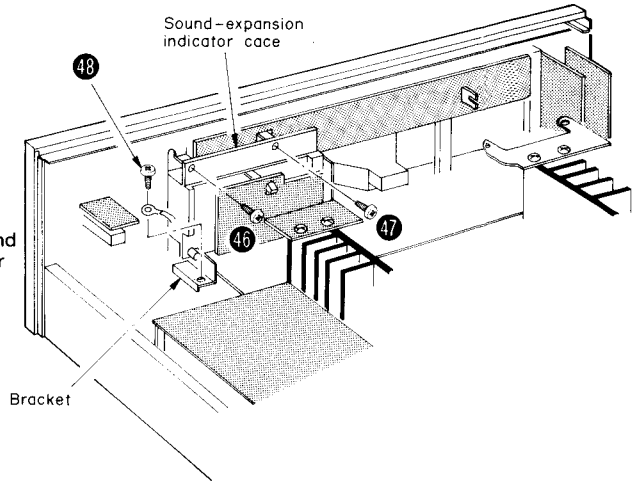
When mounting the Input selectors and volume-level indicator circuit P.C.B., make sure that the tact switch spacer is in the switch button. Be sure to set it so that the arrow mark (➡) on the tact switch spacer is positioned as illustrated.

• How to remove the FM/AM preset-tuning circuit

1. Remove the cabinet. (Refer to "**How to remove the cabinet.**")
2. Remove 2 setscrews [Fig. 7 : ㊹, ㊺] which secure the ICQ controller and overload detector circuit P.C.B.
3. Remove 2 setscrews [Fig. 8 : ㊻, ㊼] which secure the sound-expansion indicator case and the bracket setscrew [Fig. 8 : ㊽] to detach the sound expansion indicator base.

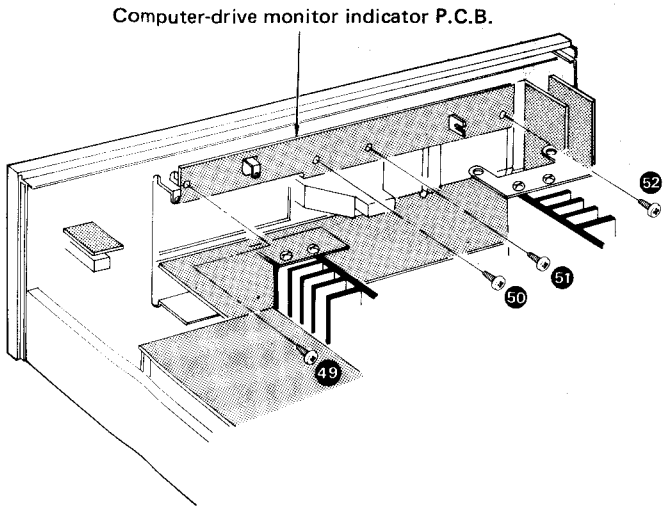


[Fig. 7]

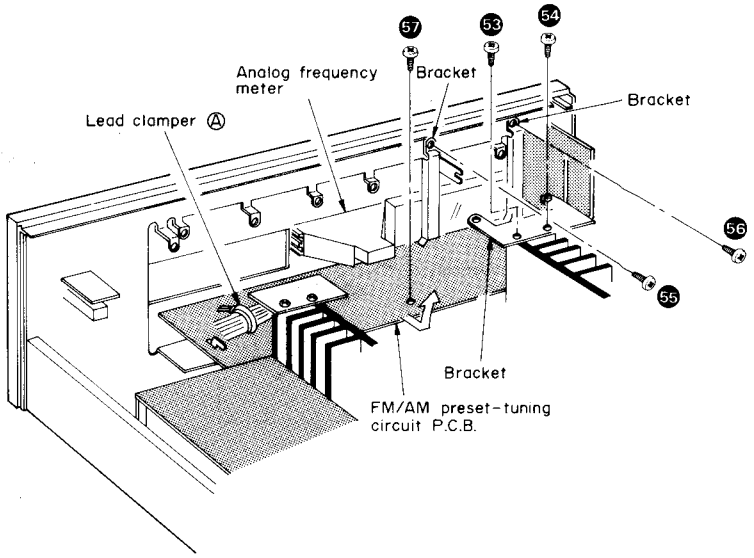


[Fig. 8]

4. Remove the 4 setscrews [Fig. 9 : ㊾ ~ ㊿] which secure the computer-drive monitor indicator P.C.B. Then the computer-drive monitor indicator P.C.B. can be removed.
5. Remove 2 setscrews [Fig. 10 : ㊸ , ㊹] which secure the ICQ controller and overload detector circuit P.C.B. retainer and 2 setscrews [Fig. 10 : ㊺ , ㊻] of digital frequency display brackets.
6. Cut off lead clamper Ⓐ [Fig. 10] and remove the analog frequency meter from the front panel.
7. Remove the setscrew [Fig. 10 : ㊼] which secures the FM/AM preset-tuning circuit P.C.B. Then the printed circuit board can be removed.



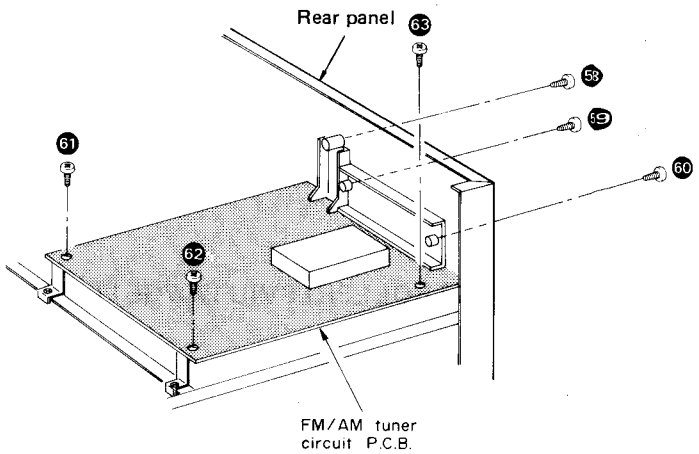
[Fig. 9]



[Fig. 10]

• How to remove the FM/AM tuner circuit P.C.B.

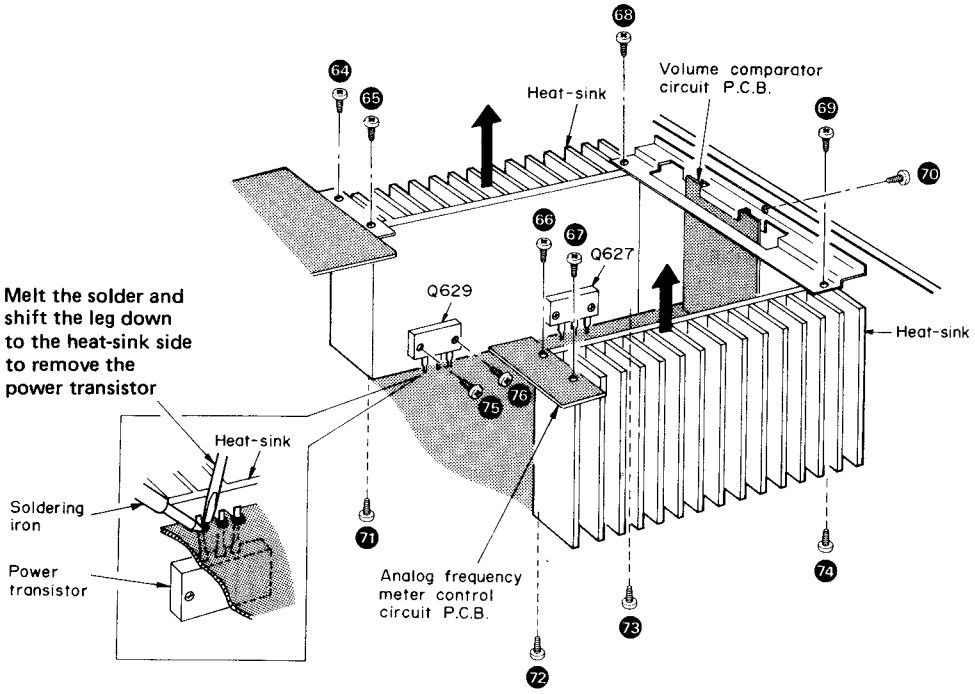
1. Remove the cabinet (Refer to "**How to remove the cabinet**")
2. Remove 3 setscrews [Fig. 11 : ㊽ ~ ㊿] which secure the antenna terminal plate and 3 setscrews [Fig. 11 : ㊶ ~ ㊸] which secure the FM/AM tuner circuit P.C.B. Then the printed circuit board can be removed.



[Fig. 11]

• How to remove the power transistors

1. Remove the cabinet and the bottom board (Refer to "**How to remove the cabinet**" and "**How to remove the bottom board**".)
2. Unsolder the power transistors Q627, 629 (L ch.) Q628, 630 (R ch.)
3. Remove 2 setscrews [Fig. 12 : ㊹ , ㊺] which secure the ICQ controller and overload detector circuit P.C.B., 2 setscrews [Fig. 12 : ㊻ , ㊼] which secure the analog frequency meter control circuit P.C.B., and 3 setscrews [Fig. 12 : ㊽ ~ ㊿] which fasten the volume comparator circuit P.C.B. retainer.
4. Remove 4 setscrews [Fig. 12 : ㊶ ~ ㊹] of heat-sink and then remove the heat-sink in the direction of the arrow.
5. Remove 2 setscrews [Fig. 12 : ㊺ , ㊻] which retain the power transistor. Then the power transistor can be removed.
6. When installing the power transistor, apply heat diffusing agent (silicon powder, etc.) to both sides of the mica plate, and secure it on the heat-sink with setscrews. Next, secure the heat-sink on the chassis and then solder the power transistor.



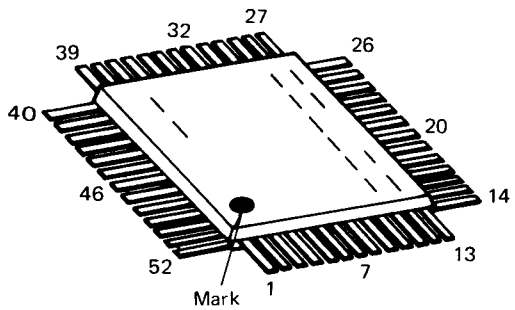
[Fig. 12]

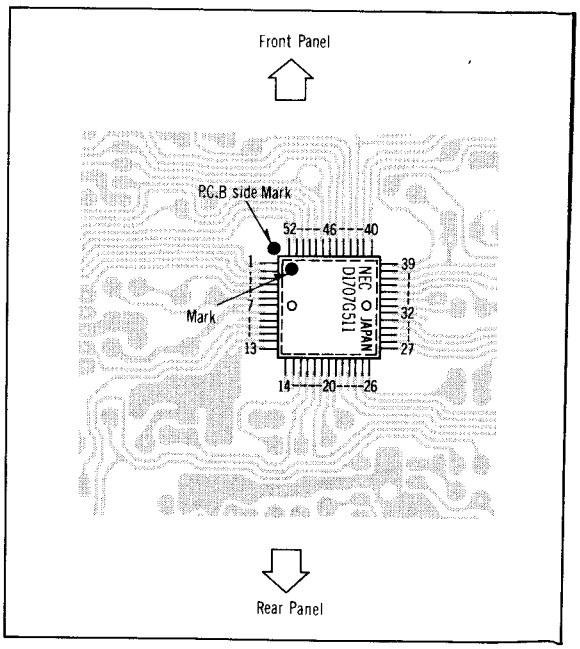
- **Terminal number of IC901 (PLL controller)**

(1) IC901 is soldered to the back side of P.C.B. When checking, repairing or replacing the terminals, dismount the P.C.B. from the chassis according to the procedure in "**How to remove the FM/AM preset-tuning circuit.**"

(2) As for the terminal number marking positions of IC901, see the drawings.

- **IC901 (PLL CONTROLLER) SVID1707G511**





■ MEASUREMENTS AND ADJUSTMENTS

AMPLIFIER ADJUSTMENT

1. Adjustment of Load Impedance Detection Circuit (after reparing the speaker impedance detection circuit). [Fig. 13]

(1) Connect a load with 6.7Ω (1/2W, carbon, resistor) or series connected 3.3Ω and 3.3Ω (1/2W, ±5%) to the "main" speaker terminals.
(2) Set the speaker selector to the "main" position.
(3) Connect **TP753** and chassis
(4) Connect a DC voltmeter between **TP751** and chassis (Lch.) or **TP752** and chassis (Rch.)
(5) Adjust VR752 (Lch.) so that the voltage of **TP751** is 0mV (−200mV ~ +50mV)
(6) Adjust VR751 (Rch.) so that the voltage of **TP752** is 0mV (−200mV ~ +50mV)

NOTE:
Be sure to adjust VR752 (Lch.) after adjusting VR751 (Rch.)

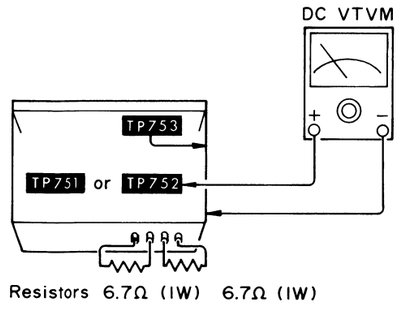
2. Idling (ICQ) Adjustment (after reparing the main amp.) [Fig. 14]

(1) After the repair, set the sound volume to minimum before turning on the power switch, and connect nothing to the speaker terminals.
(2) Completely turn ICQ control (VR601, VR602) counter-clockwise.
(3) Increase the voltage applied to the amplifier gradually from 0V by means of a power supply voltage controller, and make sure of the value in the Figure on page 4 before starting the adjustment.
(4) Connect the DC electronic voltmeter to **TP1** (+) and **TP2** (−) (L ch) or **TP3** (+) and **TP4** (−) (R ch).
(5) When 5 or 15 seconds have lapsed after computer drive monitor "auto" lights up, adjust VR601 (L ch) or VR602 (R ch) to 8 ~ 12mV.

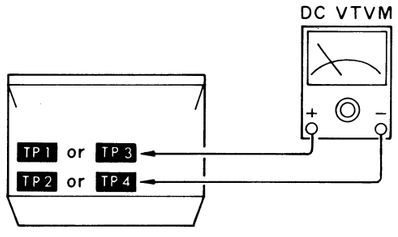
* In this set, ICQ is controlled by microcomputer, and ICQ a little more than the normal level is applied by "PREHEAT" for about 15 sec. after power ON. After that, the output level and transistor temperature are detected by "AUTO", thereby automatically controlling ICQ.

3. Clock Adjustment (after replacing the microcomputer)

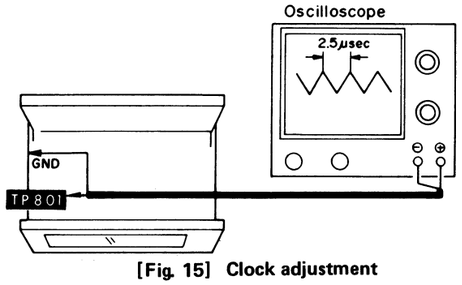
(1) Connect the oscilloscope to **TP801**.
(2) Adjust VR801 so that period of waveform is 2.5μsec (Refer to Fig. 15).



[Fig. 13] Adjustment of load impedance detection circuit

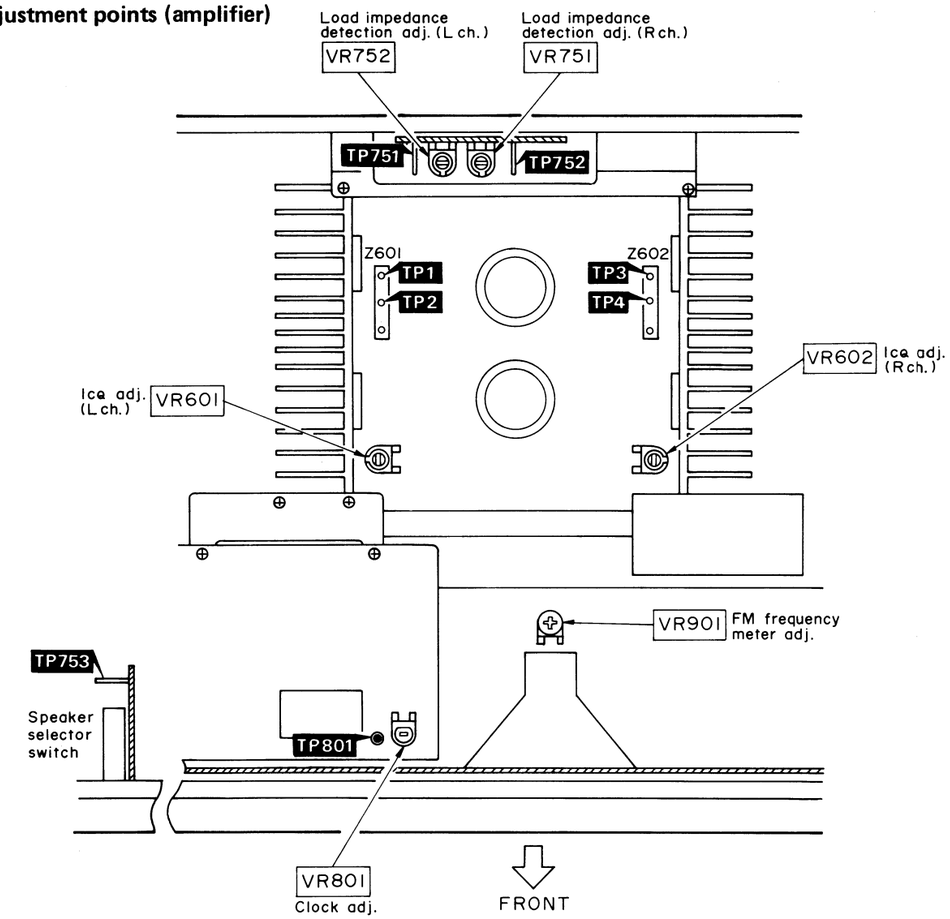


[Fig. 14] Idling (ICQ) adjustment



[Fig. 15] Clock adjustment

● **Adjustment points (amplifier)**



AM ADJUSTMENT

Note: AM IFT (T201) and AM OSC coil (L203) have been already adjusted, and require no adjustment.

*** Setting and Equipment used**
1. AC electronic voltmeters (VTVM).
2. AM signal generator (AM-SG).
3. Set Band selector to "AM" position.
4. Maintain line voltage at 120 voltage,
5. Output of signal generator should be no higher than necessary to obtain an output reading.
6. Use a non-metal screwdriver for the adjustment.

Step No.	AM SIGNAL GENERATOR CONNECTION	AM SIGNAL GENERATOR FREQUENCY	DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	AM-IF ADJUSTMENT					
1	Connect AM-SG to AM antenna terminal through 200pF cpacitor. Common to chassis. (Powerful input) (Refer to Fig. 16)	450 kHz (30% Mod. with 400 Hz)	Frequency of non-interference	Connect AC VTVM or scope to "speaker" terminals.	T202 (AM 1st IFT)	* Adjust the input frequency and adjustment points so that the output becomes maximum.
	AM-RF ADJUSTMENT					
2	Connect AM-SG to AM antenna terminal through 200pF capacitor. Common to chassis. (Weak input) (Refer to Fig. 16)	612 kHz (30% Mod. with 400 Hz	612 kHz	Connect AC VTVM or scope to "speaker" terminals.	L202 (ANT Coil)	1. Adjust for maximum output. 2. Adjust core of L202 by screwdriver.
3		1503 kHz (30% Mod. with 400 Hz)	1503 kHz	Connect AC VTVM or scope to "speaker" terminals.	CT201 (ANT Trimmer)	1. Adjust for maximum output. 2. Repeat steps (2) and (3) until the frequency correctly matches the frequency display.

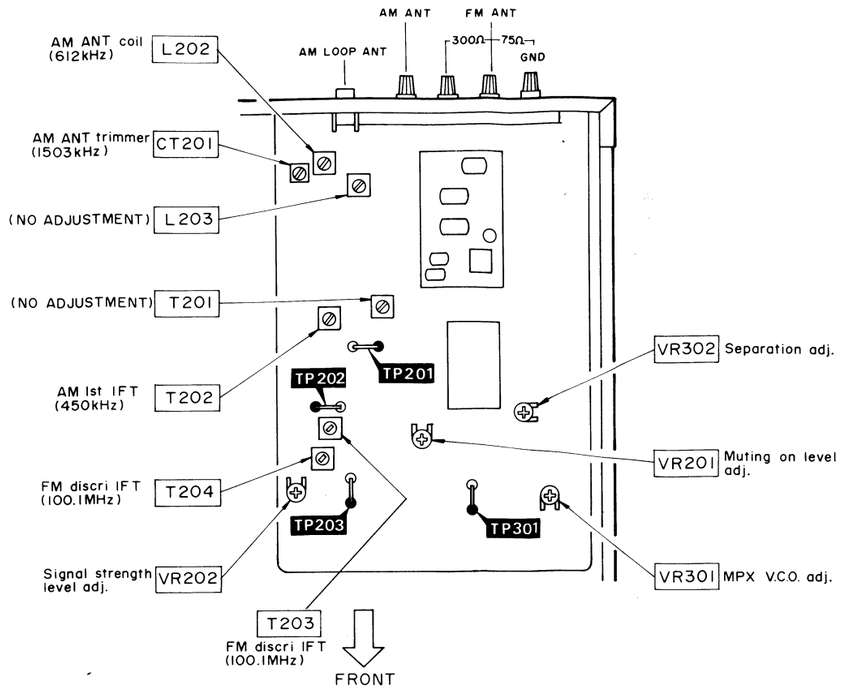
FM ADJUSTMENT

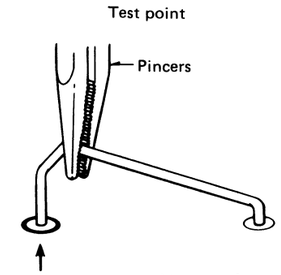
*** Setting and Equipment used**
1. FM signal generator (FM-SG).
2. Distortion analyser.
3. Oscilloscope
4. DC electronic voltmeters (VTVM).
5. Frequency counter (19 kHz and 108 MHz measurable).
6. Set band selector to "FM" position.
7. Set FM mode selector to "FM mono" position.
8. Other setting are the same as in AM adjustment.

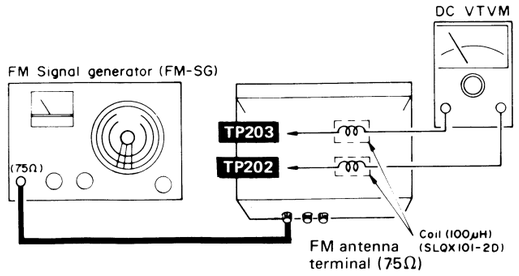
*** Preparation of FM signal generator (FM-SG)**
1. Connect stereo modulator to FM-SG.
2. Apply SG output to antenna terminal of the set.
3. The standard output of the set is 60 dB (1 mV), 400 Hz, 100% modulation (Because of attenuation, using coaxial cables. SG output must be 6 dB plus. That is, when input 60 dB, SG outpt is to be 66 dB.)

Step No.	FM SIGNAL GENERATOR: CONNECTION	FM SIGNAL GENERATOR: FREQUENCY	DISPLAY FREQUENCY	PREPARATIONS	PARTS ADJUSTED	ADJUSTING PROCEDURE
	FM MONO DISTORTION ADJUSTMENT					
4	Connect FM-SG to FM antenna terminal referring to Fig. 17. (Apply 60 dB to antenna terminal)	100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	Connect DC VTVM to between TP202 and TP203 through choke coil. (Refer to Fig. 17)	T203 (Discri. IFT)	1. Adjust T203 core so that voltage measured in signal mode is 0 mV (±50mV) in 300mV range. 2. Adjust T204 core so that distortion of right and left channels are minimized.
5		100.1 MHz (100% Mod. with 400 Hz)	100.1 MHz	Connect distortion analyser to "speaker" terminal of the set.	T204 (Discri. IFT)	
	FM MPX V.C.O. ADJUSTMENT					
	USING A FREQUENCY COUNTER			**USING ALTERNATE SYSTEM**		
6	1. 100 MHz, 60 dB Non-modulated mono signal applied to set. 2. Set FM muting/FM mode selector to "on/FM auto" position. 3. Connect frequency counter to TP301 through resistor (100kΩ) capacitor (50V 1μF) refering to Fig. 18. 4. Adjust **VR301** to 19 kHz ± 30 Hz.			1. Apply stereo signal from generator or stereo station to tuner. 2. Adjust **VR301** until stereo indicator lights up. Cement arm of **VR301** as shown in Fig. 19.		
	MUTING ON LEVEL ADJUSTMENT					
7	Connect FM-SG to FM antenna terminal (Apply 16 dB to antenna terminal.)	100.1 MHz (100% Mod. with 1 kHz)	100.1 MHz	Connect Oscilloscope to "speaker" terminal.	VR201 (Muting on level)	1. Set FM mode selector to "FM auto" position. 2. Adjust VR201 so that signal output is delivered. (Check to see that delivery of output is discontinued with input level lowered by 1 ~ 2 dB.)
	SIGNAL STRENGTH LEVEL ADJUSTMENT					
8	Connect FM-SG to FM antenna terminal. (Apply 54 dB to antenna terminal.)	100.1 MHz (100% Mod. with 400 Hz)	100.0 MHz	——	VR202 (Signal strength level)	1. Depress FM signal switch and make sure the digital frequency display changes from frequency to signal level display. 2. Adjust VR202 so that 54 dB is indicated. 3. Make sure that the signal strength level is 22 ~ 38 dB when the input is 30 dB.
	SEPARATION ADJUSTMENT					
9	Connect FM-SG to FM antenna terminal (Apply 60 dB to antenna terminal.) (Pilot 10% Mod. stereo signal.)	100.1 MHz (90% Mod. with 1 kHz) (L or R mode)	100.1 MHz	Connect AC VTVM or oscilloscope to "speaker" terminals.	VR302 (Separation)	1. Set mode switch to "auto" position. 2. Adjust VR302 so that R output is minimized when stereo modulator is in L (L ch. modulation) mode and that L output is minimized in R mode.
	ANALOG FREQUENCY METER ADJUSTMENT					
10	——	No-Signal	107.9 MHz	——	VR901 (Frequency meter)	1. Adjust VR901 so that the analog frequency meter indicates 107.9 MHz. (Refer to Fig. 20) 2. Next operate the tuning button so that 88.1 MHz and 96.1 MHz are indicated in the digital frequency display. Then make sure that the indicator is in contact with each letter. 3. If the requirement in step 2 is not satisfied, go back to step 1 and adjust the indicator within the dotted line of Fig. 20.

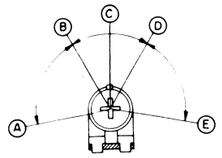
• Adjustment points (FM/AM tuner)







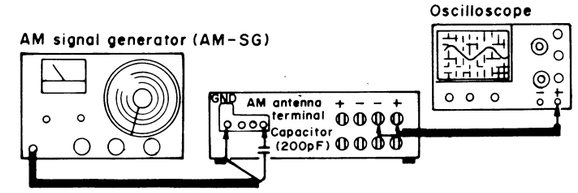
[Fig. 17] Adjustment of FM mono distortion



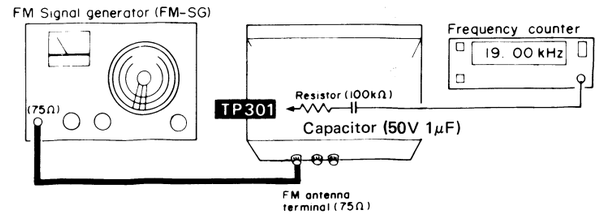
VR301

Ⓐ–Ⓑ, Ⓓ–Ⓔ : Stereo OFF position.
Ⓑ–Ⓓ : Stereo ON position. (indicator lighting)
Ⓒ : Adjust point of pilot circuit

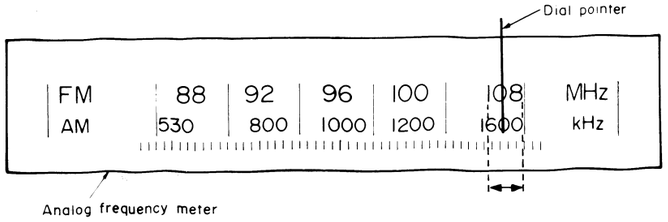
[Fig. 19] Adjustment of FM MPX. V.C.O.



[Fig. 16] Adjustment of AM-IF and AM-RF

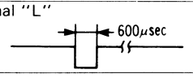
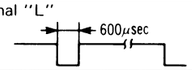
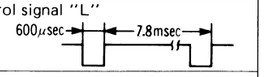
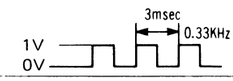
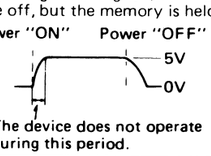
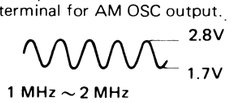
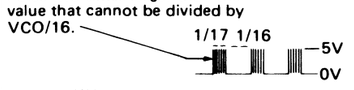


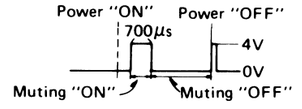
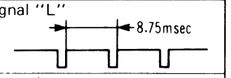
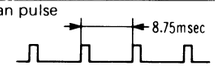
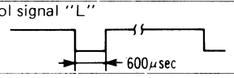
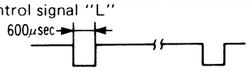
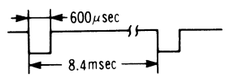
[Fig. 18] Adjustment of FM MPX V.C.O.



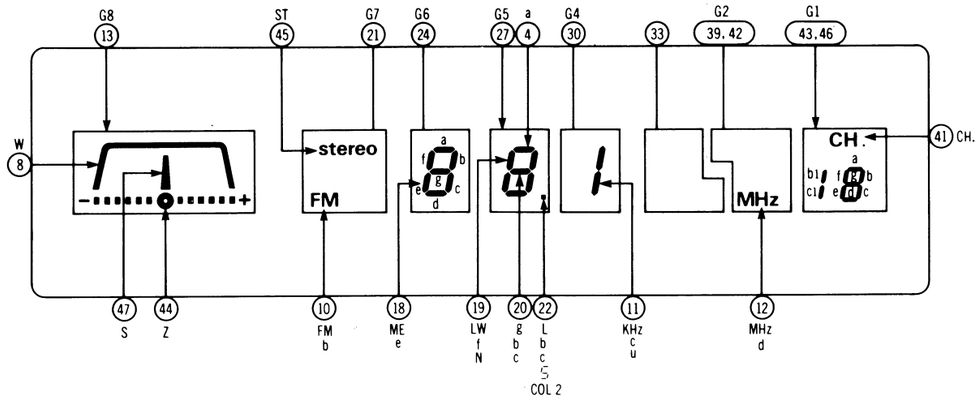
[Fig. 20] Adjustment of ANALOG FREQUENCY METER

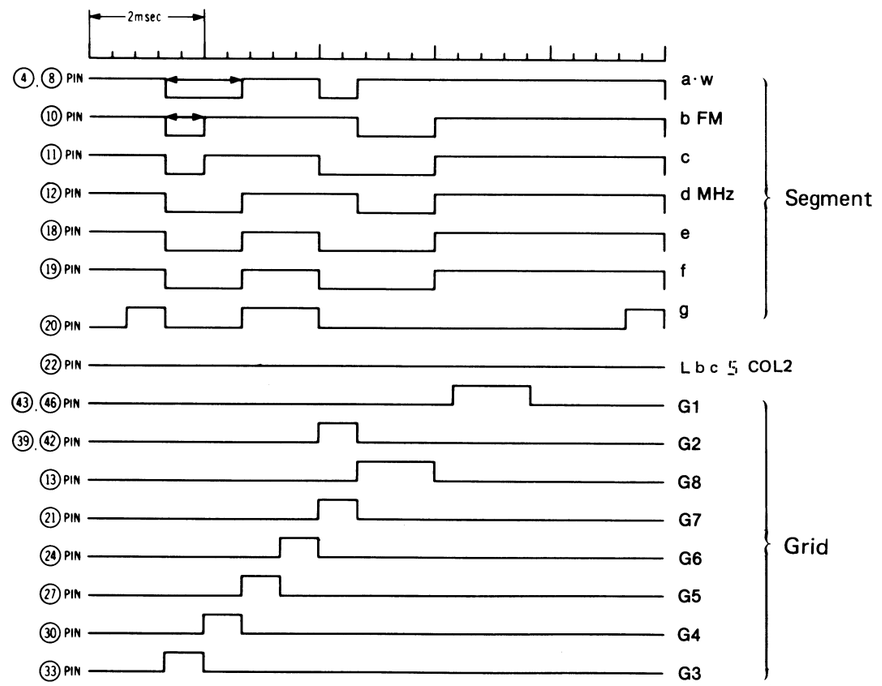
■ FUNCTION OF TERMINAL (PLL CONTROLLER IC901)

PIN No.	I/O	Mark	Description of terminal
1	OUTPUT	D3	Grid 5 control signal "L" 
2	OUTPUT	D2	Grid 4 control signal "L" 
3	OUTPUT	D1	Grid 3 control signal "L" 
4	OUTPUT	CGP	Clock generator port 
5	INPUT	X1	Connecting terminal for crystal oscillator. The crystal connected is at 4.5MHz.
6	INPUT	X2	
7	–	VDD1	Power supply terminal of the device
8	–	VDD2	VDD for internal A-D converter
9	INPUT	AD2	Not used in this unit
10	INPUT	SD	This input terminal detects the reception of a broadcasting station. The voltage is 5V during reception, and otherwise 0V.
11	INPUT	SL	Signal strength level (0 ~ 2.3V DC)
12	–	GND3	Ground for internal A-D converter
13	–	GND2	Ground for internal PLL stage
14	–	NC	Not used in this unit.
15	OUTPUT	EO2	Not used in this unit.
16	OUTPUT	EO1	When the divided oscillation frequency is higher than the standard frequency, H-level output is delivered from these terminals. When it is lower, L-level (0V) output is delivered. When they coincide, it results in floating.
17	INPUT	CE	Chip enable and reset. This is the selected signal input terminal of the device. When operating the device, make the level high, and when it is not used, make the level low. When this terminal is at low level, all the segment (a ~ g) and digits (D1 ~ D7) terminals are off, but the memory is held. 
18	INPUT	FM IN	Input terminal for FM OSC output frequency-divided to 1/16 or 1/17 by prescaler.
19	INPUT	AM IN	AM OSC input from IC101. Input terminal for AM OSC output. 
20	OUTPUT	PSC	Reference signal for pre-scaler. This is the terminal to deliver the frequency dividing ratio changeover output signal to the pre-scaler. The terminal continues to produce pulses at the rise of the signal applied to FM terminal (18) until the content of the inside swallow counter is 0. When the swallow counter comes to 0, the terminal level becomes low, then the frequency dividing ratio of pre-scaler is 1/16. Pulse two times larger than the value that cannot be divided by VCO/16. 

PIN No.	I/O	Mark	Description of terminal
21	–	GND	Ground for CPU
22	OUTPUT	INT	Input selector control (Tuner → L)
23	OUTPUT	PC3	Not used in this unit
24	OUTPUT	RF SW	Input selector control (Phono → L)
25	OUTPUT	PC1	Input selector control (Aux → L)
26	OUTPUT	INT	This is the interrupt demand signal input terminal. The signal from the control input terminal is put into this terminal, demanding for interruption, then the flow of program will be unconditionally shifted to the address No. 1.
27	OUTPUT	FM/AM	FM/AM switching signal (AM → 4.1V, FM → 0.2V)
28	OUTPUT	LW/MONO	Stereo/Monaural switching signal. (Monaural → 5V, Stereo → 0V)
29	OUTPUT	REC	Not used in this unit
30	OUTPUT	i	Output terminal for diode matrix.
31	OUTPUT	j	Output terminal for diode matrix.
32	OUTPUT	PA2/SI	Not used in this unit
33	–	VDD1	This terminal is connected to Pin 7 at inside stage.
34	OUTPUT	PA1	FM/AM frequency meter control port
35	OUTPUT	IF SW	Normal/super narrow select for, FM IF signal flow (output "L" – FM IF band is normal, output "H" – FM IF band is super narrow)
36	OUTPUT	MUTE	This is the output terminal to eliminate shock noise due to unlocking at PLL. When the CE terminal is at low level, the output from this terminal is at high level. 
37	OUTPUT	D7	Grid 1 control signal "L" 
38	OUTPUT	h	Diode matrix scan pulse 
39	INPUT	K3	Input terminal for key return signal from external key matrix. The output of segment terminals (a ~ g) is used as the key return signal source.
40	INPUT	K2	
41	INPUT	K1	
42	INPUT	K0	
43	OUTPUT	g	Segment signal output terminal for display.
44	OUTPUT	f	
45	OUTPUT	e	
46	OUTPUT	d	
47	OUTPUT	c	
48	OUTPUT	b	
49	OUTPUT	a	
50	OUTPUT	D6	Grid 8 control signal "L" 
51	OUTPUT	D5	Grid 7 control signal "L" 
52	OUTPUT	D4	Grid 6 control signal "L" 

■ FLUORESCENT DISPLAY TUBE (FL) and TIMECHART





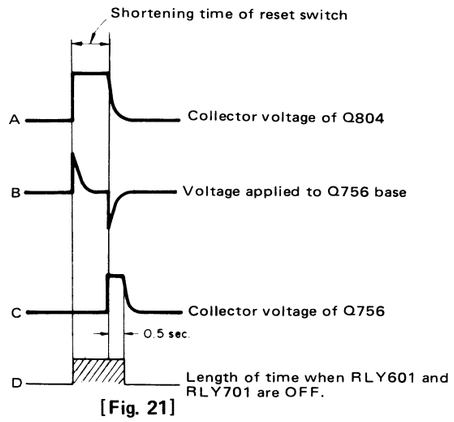
■ DESCRIPTION OF SPEAKER IMPEDANCE DETECTION CIRCUIT

This circuit serves to detect the impedance of speaker connected to the speaker terminals and to change the secondary tap voltage of power transformer according to the speaker impedance. It consists of a voltage comparing circuit, reset circuit, detection signal generating circuit, and speaker select relay drive circuit.

1) Reset circuit and detection signal generating circuit

The reset switch of speaker select switch is short-circuited only when the switch is shifted, with the speaker select switch shifted, the reset switch is short-circuited, then Q754 of reset circuit turns ON. When Q754 turns ON, positive voltage as in Fig. 21-A is generated at the collector of Q754, causing Q755 to turn ON.
When Q755 turns ON, Q631 turns OFF, and so does RLY601.

When the reset switch is open, a voltage as in Fig. 21-B is applied to the base of Q756 due to the charge and discharge of C756.
With Q756 turned ON, a voltage as in Fig. 21-C is generated at the collector of Q756. The voltage causes Q755 to turn ON.
With Q754 turned ON, Q752 turns ON, and Q751 OFF, with Q751 turned OFF, RLY701 turns OFF (high volt tap).
When Q755 turns ON, RLY601 turns OFF and so does RLY701 (high volt tap). That is, both RLY601 and RLY701 are OFF during short-circuit of reset switch and for 0.5sec. more after opening the switch.
Also, when power switch is turned ON, C753 is charged with voltage, then the base voltage of Q754 becomes 0V and Q754 turns ON. Then both RLY601 and RLY701 turn OFF, and the speaker impedance detecting circuit operate. About 0.5sec. after power switch ON, C753 is discharged and Q754 turns OFF.



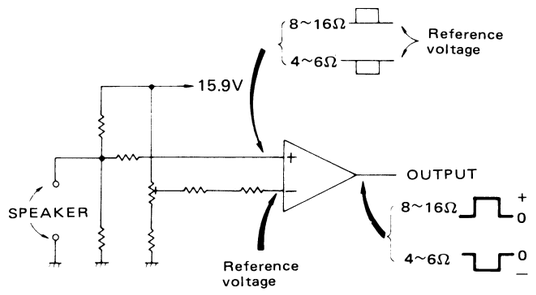
[Fig. 21]

2) Voltage comparing circuit

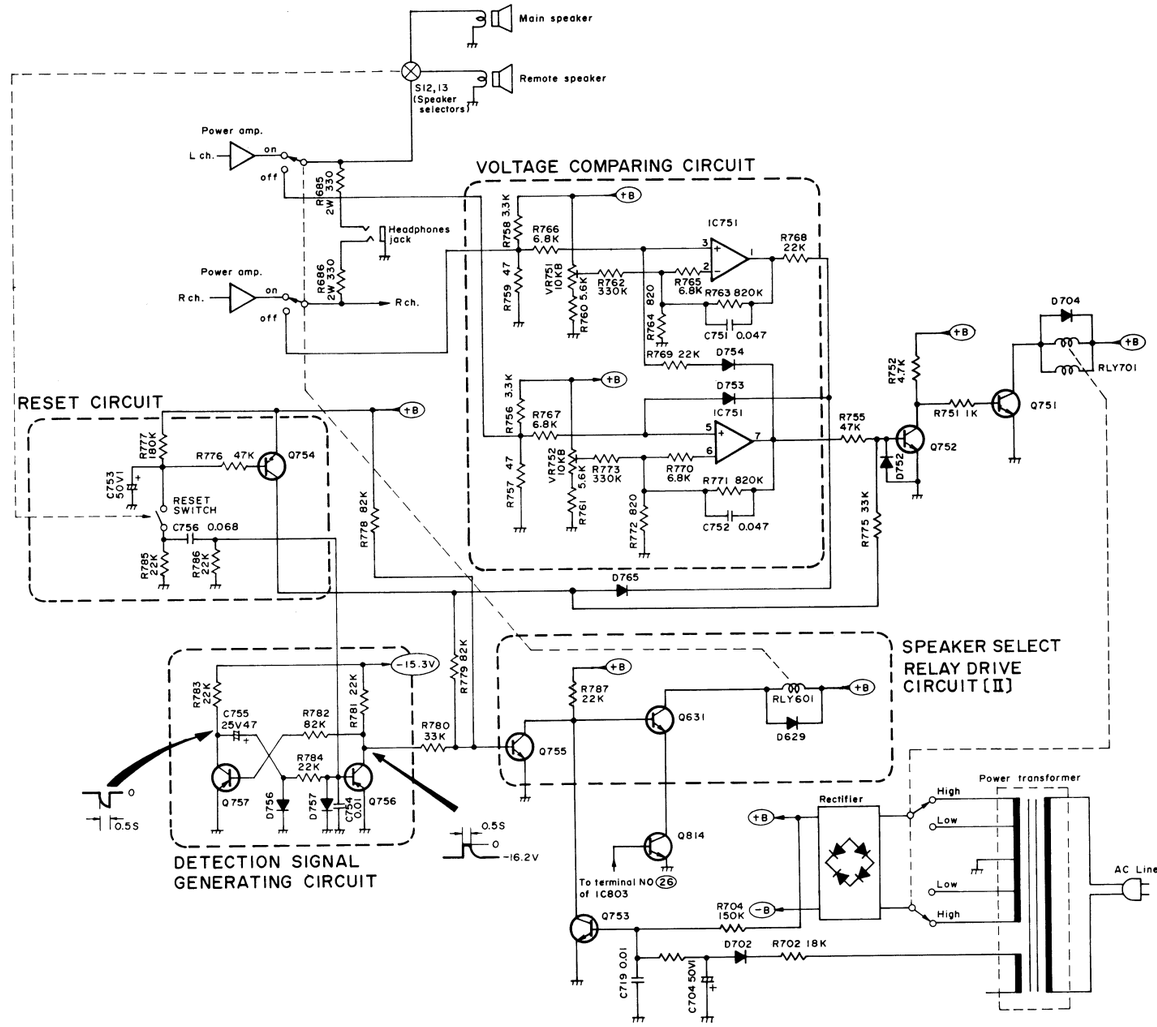
IC751 is a voltage comparing circuit. With RLY601 turned OFF, the speaker is connected to the voltage comparing circuit. (Fig. 22) The reference voltage is applied to minus terminals (②, ⑥) of IC751.
Also, plus terminals (③, ⑤) of IC751 are subject to change according to the impedance of the speaker connected to the set.
The adjustment has been made with VR751 and VR752 so that the output voltage of IC751 is 0V with 6.5Ω speaker connected. If the impedance of the speaker connected is 4Ω, the output voltage of IC751 becomes negative, cuasing Q752 to turn OFF.
Then RLY701 also turns ON (low volt tap).
If the speaker impedance is 8Ω, the output voltage of IC751 becomes positive, then Q752 turns ON and RLY701 also turns OFF (high volt tap).

3) Voltage comparing circuit and reset circuit

The operation amplifier of voltage comparing circuit has a nature to hold the impedance 8Ω, or 4Ω once detected. So, if a speaker with different impedance is connected, it is necessary to turn OFF the power supply or shift the speaker select switch before operating the reset circuit.



[Fig. 22]



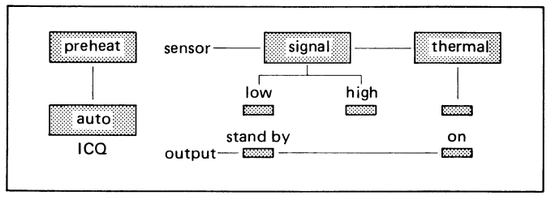
■ OPERATION OF Icq CONTROLLER

Computer-drive monitor indicators

To prevent transient crossover distortion , a stabilized idling current (ICQ) through the power transistors is constantly necessary.
ICQ will vary with the signal level and the instantaneous temperature of the power transistors.
The microcomputer will optimize ICQ automatically by preheating the power transistors and sensing the signal level and the temperature of the power transistors.
* Transient crossover distortion is caused by momentary fluctuations of the ICQ level.

ICQ

When the power is turned on, the "preheat" indicator will illuminate. This shows that a high level of ICQ is flowing through the power transistors to achieve circuit stability quickly. When "auto" illuminates, the optimum ICQ level is flowing and being controlled by te microcomputer.



Sensor

- **Signal**
  When the signal level is very low, both the "low" and "high" indicators will illuminate. As the signal level is increased, the "low" indicator will go out. When the signal level is further increased, both indicators will be out.
- **thermal**
  When the "thermal" indicator illuminates, the temperature of the heatsink is low and no adjustment of ICQ is required by the microcomputer. When the "thermal" indicator goes off, the microcomputer is adjusting the ICQ because of the temperature rise of the heatsink.

Output indicators (output)

These indicators show the condition of the signal sent to speakers or headphones.
When the power switch is switched on, the "stand by" indicator flashes, and, when the unit is operating normally, the "on" indicator will illuminate.
Note that the "stand by" indicator will flash if the positive and negative speaker terminals or speaker connection cords are short-circuited, or if some other circuit abnormality which causes the protection circuit to function is detected. If this occurs, switch the power switch off, and then on again after first determining the cause of the problem and correcting it.

- **ON-time of each indicator, and output generated at pin terminal of microcomputer (IC803)**

"ON" (light up) time

Output port / Ind. / sec.	(4) pin CO_7 bias low	(2) pin CO_6 bias high	(15) pin EO_0 sensor thermal	(16) pin EO_1 sensor signal	(17) pin EO_2 ICQ auto	(18) pin EO_3 output stand by	(26) pin DO_3 output on	(23) pin DO_0 ICQ preheat
Power "ON"	Ⓛ	Ⓛ	Ⓛ	Ⓛ	Ⓛ	Ⓛ	Ⓛ	Ⓛ
0.4 sec.								
0.8 sec.		Ⓗ			Ⓗ	Ⓗ		
0.4 sec.						Ⓛ		
0.4 sec.						Ⓗ		
0.4 sec.						Ⓛ		
0.4 sec.		Ⓛ		Ⓗ		Ⓗ		
0.4 sec.						Ⓛ		
0.4 sec.						Ⓗ		
0.4 sec.			Ⓗ	Ⓛ		Ⓛ		
0.4 sec.						Ⓗ		
0.4 sec.						Ⓛ		
0.4 sec.	Ⓛ	Ⓗ				Ⓗ		
0.4 sec.						Ⓛ		
0.4 sec.						Ⓗ		
6 sec.								
14 sec.		Ⓛ	Ⓛ	Ⓛ			Relay ON	
∫		Ⓛ			Ⓛ		Ⓗ	Ⓗ

[Fig. 24]

1) Preheat

When power supply is turned ON, the level of IC803 pin ㉓ becomes low. At the same time, preheat LED (D815, D816) lights up. Each of D823, D824 and D825 is controlled by IC803 terminals ② , ③ and ④ respectively. The output voltages are shown in Fig. 24. The "low" LED will illuminate and then "high" LED will illuminate. IC803 Pin ⑰ turns power supply ON as in Fig. 24. It becomes "H" 0.4 sec. later, then IC802 pin ⑤ (⑥) also becomes "H". IC802 pin ⑫ (⑪) changes to "L" and it is applied to Q808 (Q809), causing Q808 (Q809) to turn ON. IC802 pin ⑫ (⑪) delivers a large ICQ for 6 sec. after power ON (while pin ⑫ (⑪) is "L"), and after that, pin ⑫ (⑪) become "H". ICQ is controlled by the output of IC803 pin ② , ③ , ⑤ , ⑥.

2) Signal sensor and thermal sensor

The musical signal from power amplifier is applied to IC803 pin ⑪ or ⑫ (pin ⑬ or ⑭) through D801 (D802) and IC801. When the signal changed to DC by D801 (D802) and C801 (C802), becomes about 2V, then "L" input is applied to IC803 pin ⑪ (pin ⑬), becomes about 5V, then"L" input is applied to IC803 pin ⑫ (pin ⑭), and the output is delivered to IC803 pin ② , ③ , ⑤ , ⑥. Also, when the temperature of heat-sink becomes higher than 70°C the resistance of the thermistor PS801 (PS802) increases and IC801 pin ② (③) becomes "H". IC801 pin ⑮ (⑭) changes to "L"', then "L" input is applied to IC803 pin ⑨ (⑩). The output is delivered to IC803 pin ⑪, ⑬ (pin ⑫ , ⑭) [signal sensor input] and IC803 pin ⑨ (⑩) (thermal sensor input), thereby controlling ICQ through R839, R840, R841 (R842, R843, R844) and Q808, Q809.

3) Power on/off muting

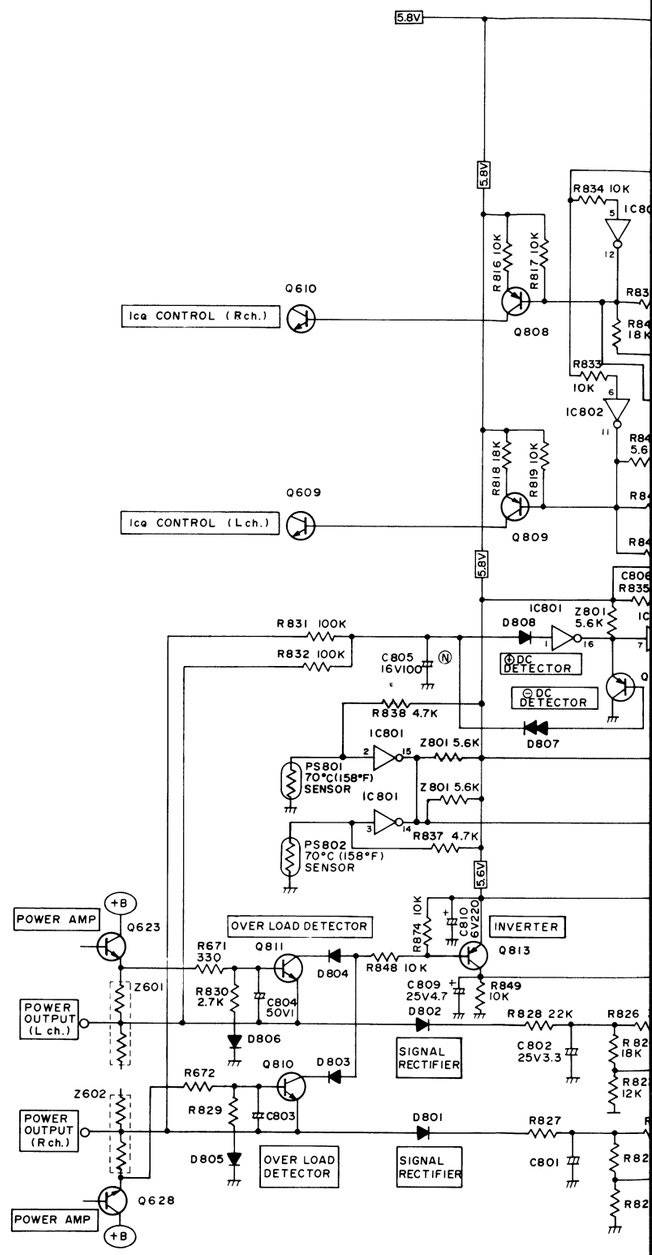
When power supply is turned ON, the output of IC803 pin ㉖ is "L" for about 6 sec. as in Fig. 24, then relay RLY601 turns OFF, and D827 "output on" LED also turns OFF. The voltage of IC803 pin ⑱ alternately becomes "L" and "H" for 6 sec. after power ON as in Fig. 24, causing D826 "stand by" LED to blink. IC803 pin ㉖ output becomes "H" 6 sec. after power ON, then relay RLY60 turns ON and D827 "output on" LED lights up.
When power supply is turned OFF, "H" is applied to IC802 pin ④ and IC802 pin ⑬ output changes to "L" because the time constant of C704 (1μF) and R703 (15kΩ) is smaller than that of C702 (15000μF) and R704 (150kΩ). The signal is put into IC803 pin ⑳ while "L" output is delivered to IC803 pin ㉖ .
When pin ㉖ becomes "L", Q814 turns OFF and so does relay RLY601.

4) DC detection circuit

When the power amplifier voltage is over 2V DC. IC801 pin ①(⊕ DC detection) and Q812 (⊖ DC detection) are turned ON, then "H" input is applied to IC803 pin ⑦ , and "L" output is delivered to IC803 pin ㉖ . When pin ㉖ becomes "L", relay RLY601 turns OFF the same as in power-off muting.

5) Overload detector circuit

When speaker terminals are short-circuited, a large amount of current flows into Z601 (Z602), and the base voltage of Q811 (Q812) increases, causing Q811 (Q812 and Q813 to turn ON. As Q813 turns ON, "H" input is applied to IC803 pin ㉒ , and "L" output is delivered to IC803 pin ㉖ . When pin ㉖ becomes "L", relay RLY601 turns OFF the same as in power off muting.
When "H" is applied to IC803 pin ㉒ , the output of IC803 pin ㉖ is held. Therefore, turn off the power switch and check the set beforehand. Otherwise, relay RLY601 will not turn ON.



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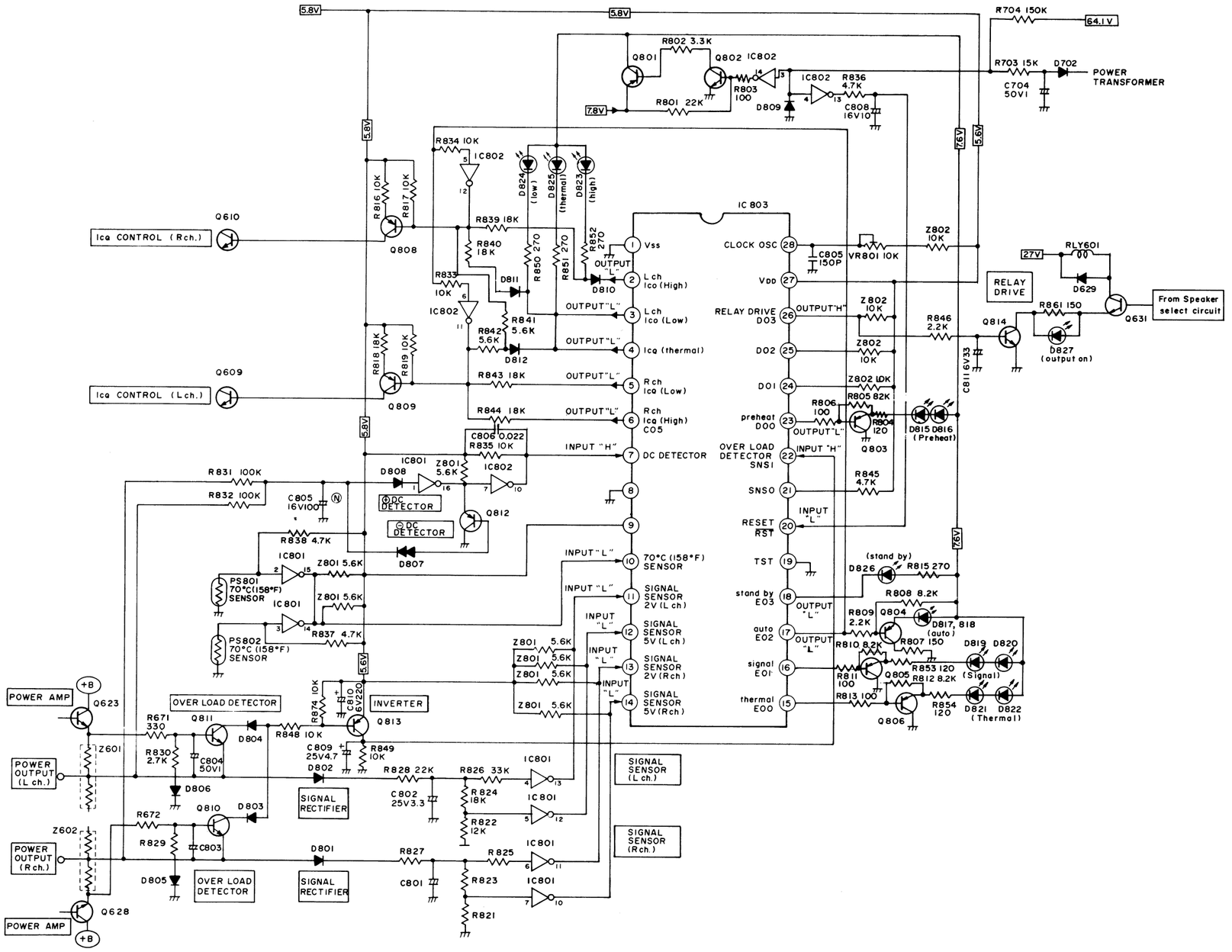
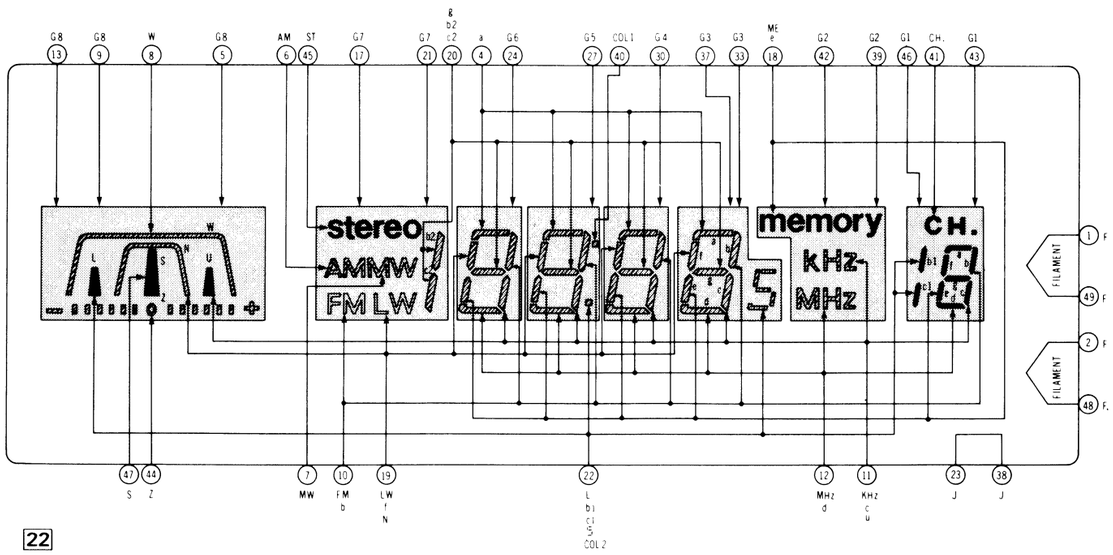


■ PRINTED CIRCUIT BOARDS

- Terminal guide of transistors, IC's and diodes

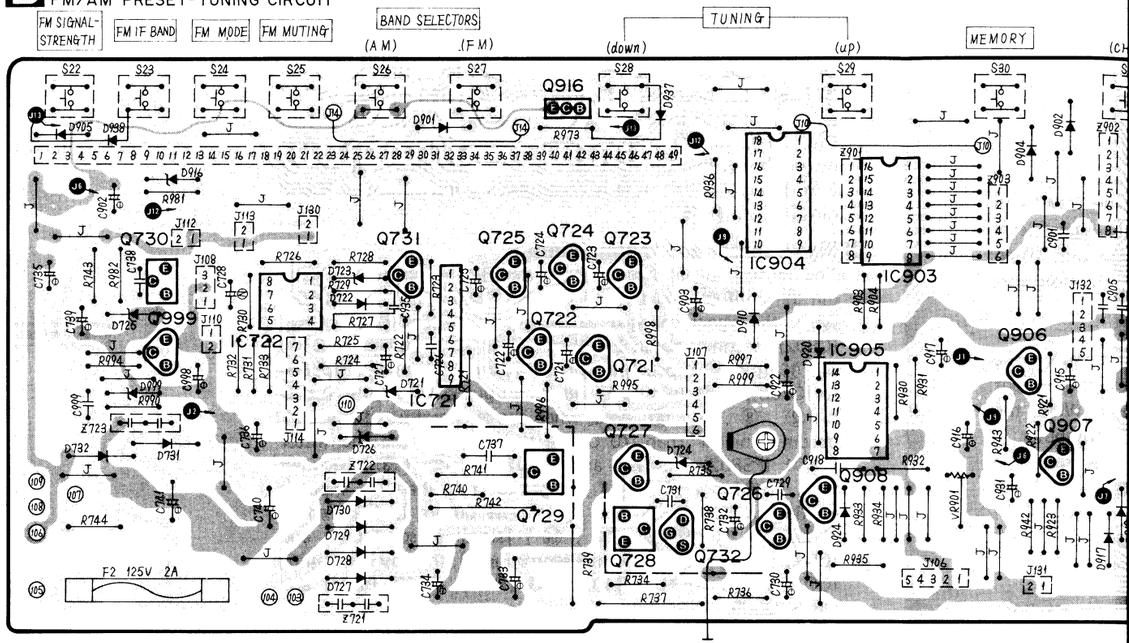
SVIμPC1018C SVIμPC1167C2 SVIμPC1161C3 SVITD62501P SVITC5066BP SVTA7612AP	16PIN	SVIDI707G511	AN6875	2SD661 , 2SB461	SVDMC911
MN6631 MN6632	18PIN				
AN6873N		2SCI675 , 2SC828	2SC2592 , 2SAIII2	MAI50 , 0A90	MAI030L, MAI160H
SVIμPD4011BC	14PIN	2SA564 , 2SCI383	2SD762 , 2SB761		MAI150H, MAI030L
SVINJ4559DSM SVINJ4562DD SVINJ4558DSM AN6552 SVIμPB553C-E	8PIN	2SCI685 , 2SA684 2SCI845 , 2SAII23 2SAII24 , 2SC2632 2SCI509 , 2SC945 2SA720 , 2SC3112			MAI062A
MNI421STA	28PIN		2SD845 , 2SB755	SVDKVI236Z	SVDSI0VB20
SVDSRIK2		SVDMZ□□□□	MAI082M	MAI62A	MA27WA
LN41YCPHLMS LN31GCPHLG LN41YPHLMS		LN21RCPH	LN340CPG LN440CP LN240CP		

- Fluorescent Display Tube (FL)

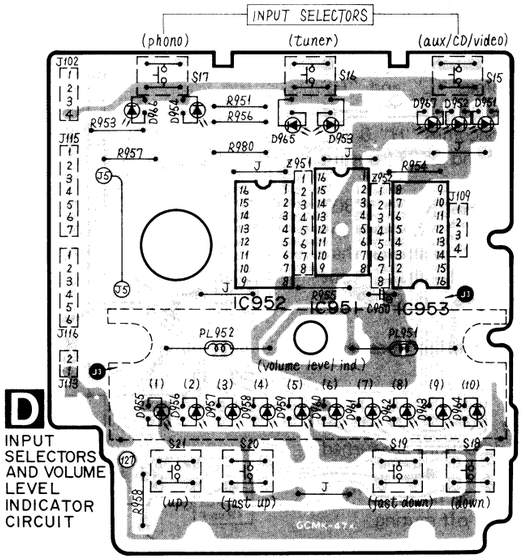


Ground (Earth) lines

B FM/AM PRESET-TUNING CIRCUIT

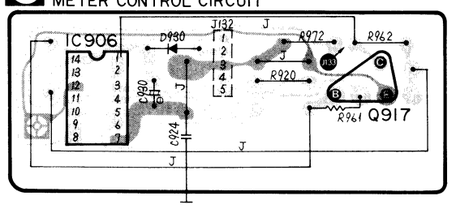


D INPUT SELECTORS AND VOLUME LEVEL INDICATOR CIRCUIT

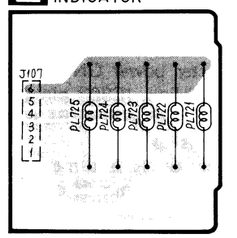


C ANALOG FREQUENCY METER CONTROL CIRCUIT

VOLUME CONTROL

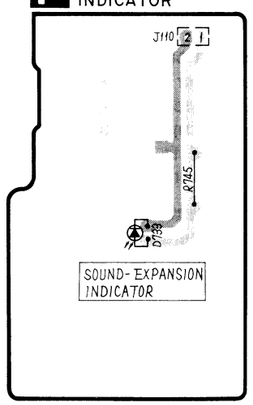


E SOUND EXPANSION INDICATOR

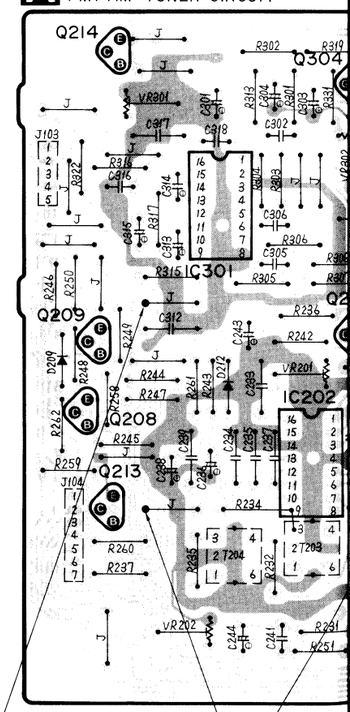


SPACE DIMENSION INDICATOR

F SOUND EXPANSION INDICATOR

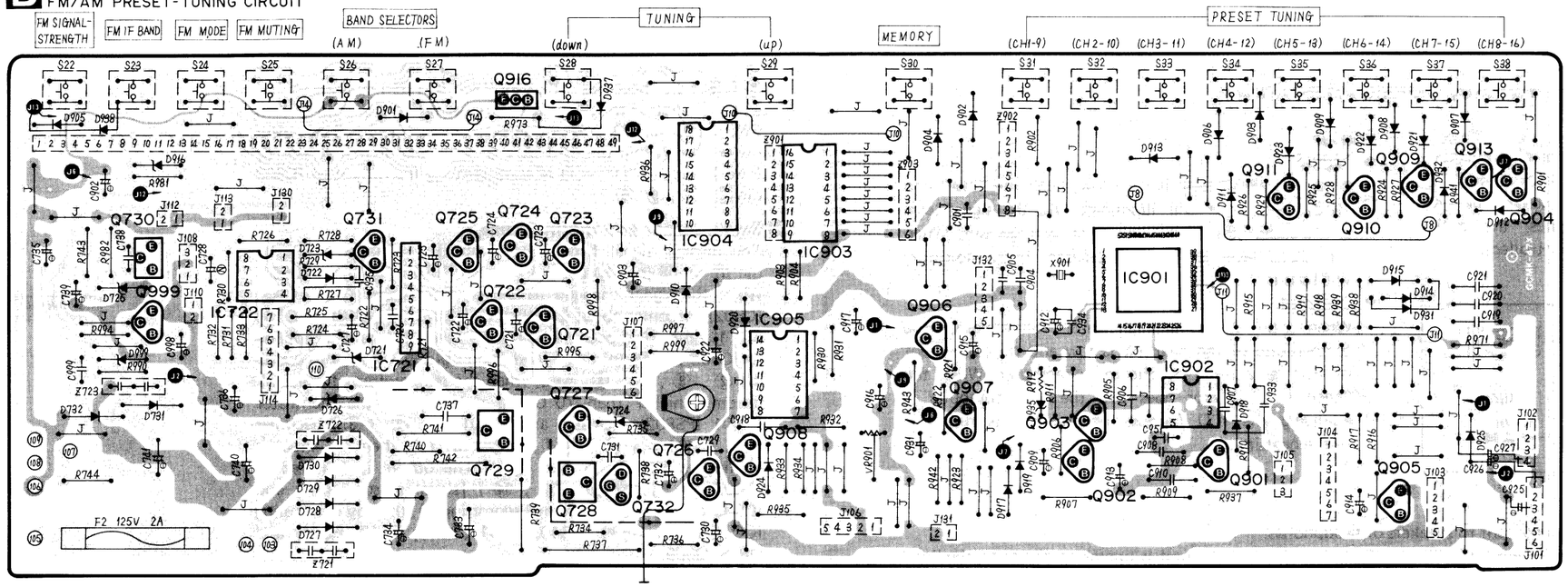


A FM/AM TUNER CIRCUIT

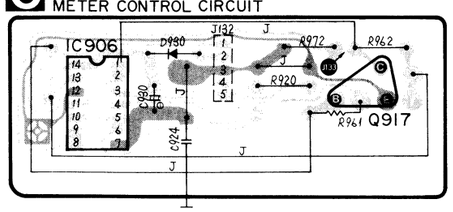


Ground (Earth) lines

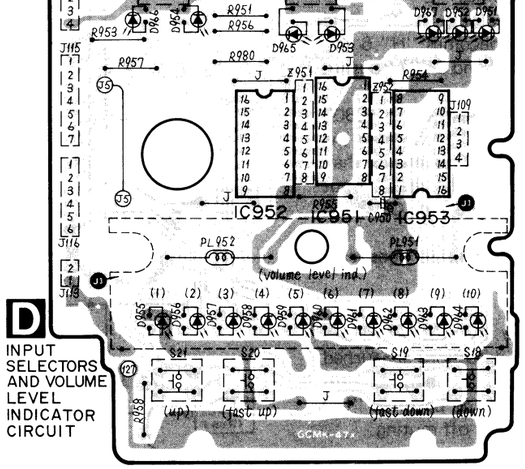
B FM/AM PRESET-TUNING CIRCUIT



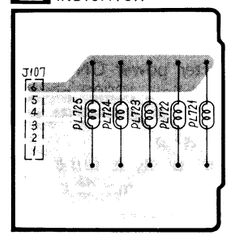
C ANALOG FREQUENCY METER CONTROL CIRCUIT



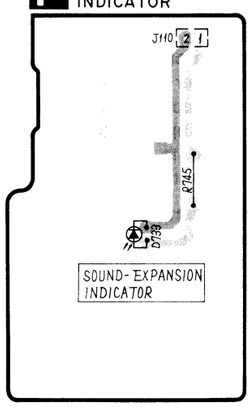
D INPUT SELECTORS AND VOLUME LEVEL INDICATOR CIRCUIT



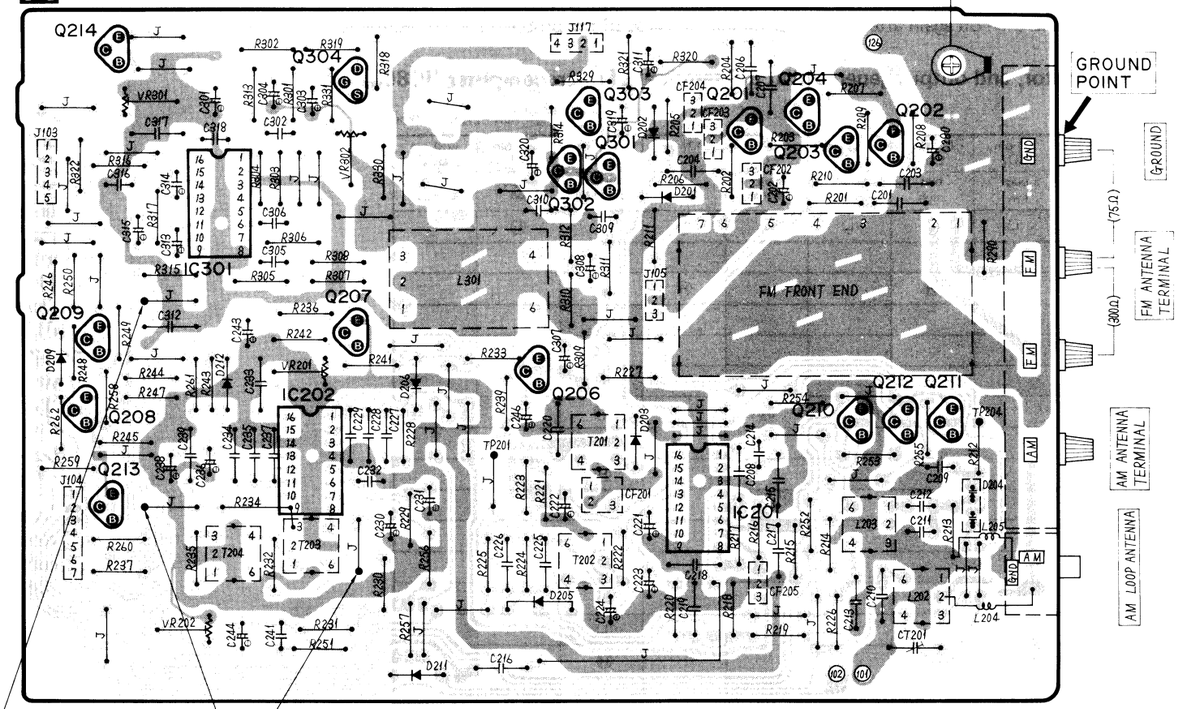
E SOUND EXPANSION INDICATOR



F SOUND EXPANSION INDICATOR



A FM/AM TUNER CIRCUIT



TP301 19kHz output

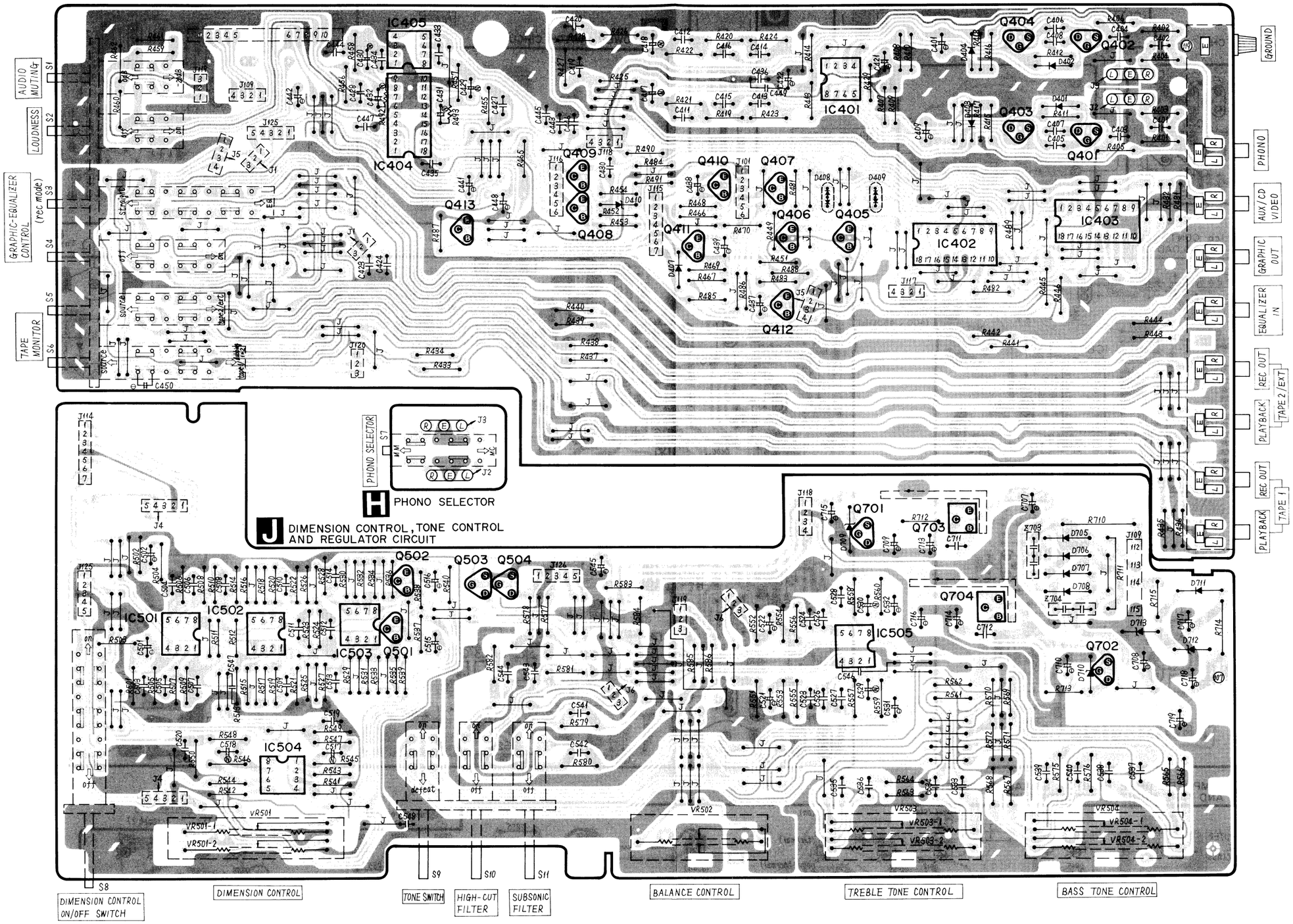
TP203 FM offset voltage(0mV)

TP202

G EQUALIZER, INPUT SELECTOR CONTROL AND VOLUME CONTROL CIRCUIT

H PHONO SELECTOR

J DIMENSION CONTROL, TONE CONTROL AND REGULATOR CIRCUIT



P SPEAKER TERMINALS

SPEAKER TERMINALS (RIGHT) (LEFT)

REMOTE MAIN

I LOUDNESS CONTROL SWITCH CIRCUIT

N SPEAKER SELECTORS

S18 REMOTE SWITCH

S12 MAIN SWITCH

TP753

O HEADPHONES

R POWER SWITCH CIRCUIT

POWER S14

F1 125V 7A

Q VOLTAGE COMPARATOR CIRCUIT

Tap select adj. (Rch) TP752

Q753 Q757 Q756 Q755 Q754 Q751 Q752

IC751

TP751 Tap select adj. (Lch)

K Icq CONTROLLER AND OVER LOAD DETECTOR CIRCUIT

Q813 Q812 Q814 Q810 Q811 Q804 Q806 Q809 Q808 Q805 Q803 Q801 Q802

IC802 IC803 IC801

TP801 Clock adj. (400 ~ 430kHz)

M MAIN AMPLIFIER AND REGULATOR CIRCUIT

Icq adj. (Rch) TP4 TP3

Q604 Q602 Q608 Q606 Q612 Q614 Q630 Q628 Q622 Q618 Q620 Q624 Q626 Q610 Q616 Q615 Q609 Q619 Q617 Q621 Q623 Q625 Q605 Q607 Q611 Q601 Q603 Q613 Q629 Q627 Q631

IC601

TH602 TH601

RLY701 RLY601

Z601 Z602 Z701 Z702

L601 L602

TP2 TP1 Icq adj. (Lch)

L COMPUTER DRIVE MONITOR, SIGNAL-STERENGTH AND TAPE MONITOR INDICATOR CIRCUIT

COMPUTER DRIVE, NEW CLASS A IND.

PL801

(auto) D817 D818 (preheat) D815 D816

D826 (Stand by) D823 (low) D824 (high) (signal) D819 D820

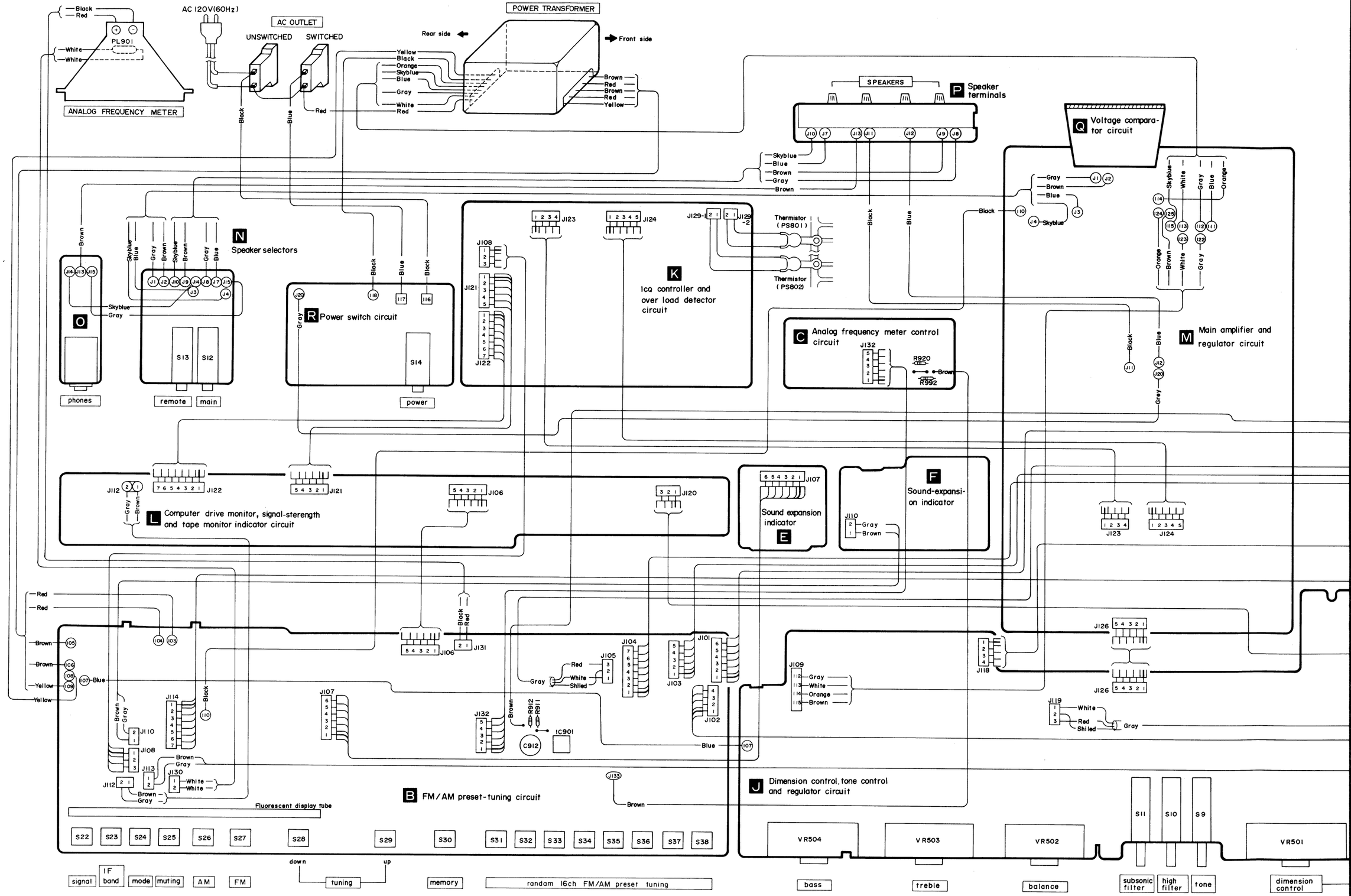
D827 (on) D825 (thermal) D821 D822 (thermal)

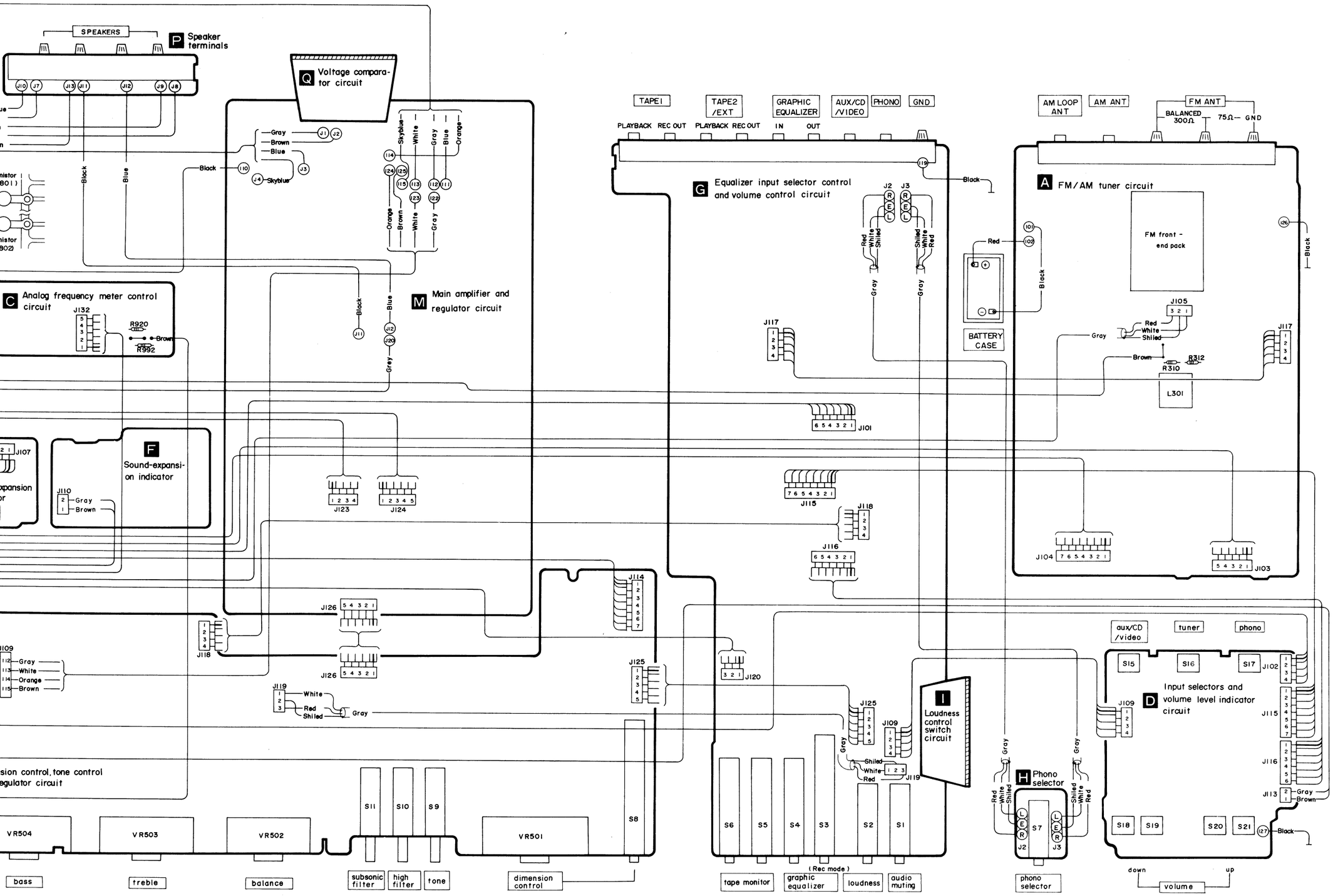
D828 (scan) D829 (quartz lock)

(Signal strength) (1) (2) (3) D830 D831 D832 D813 D814

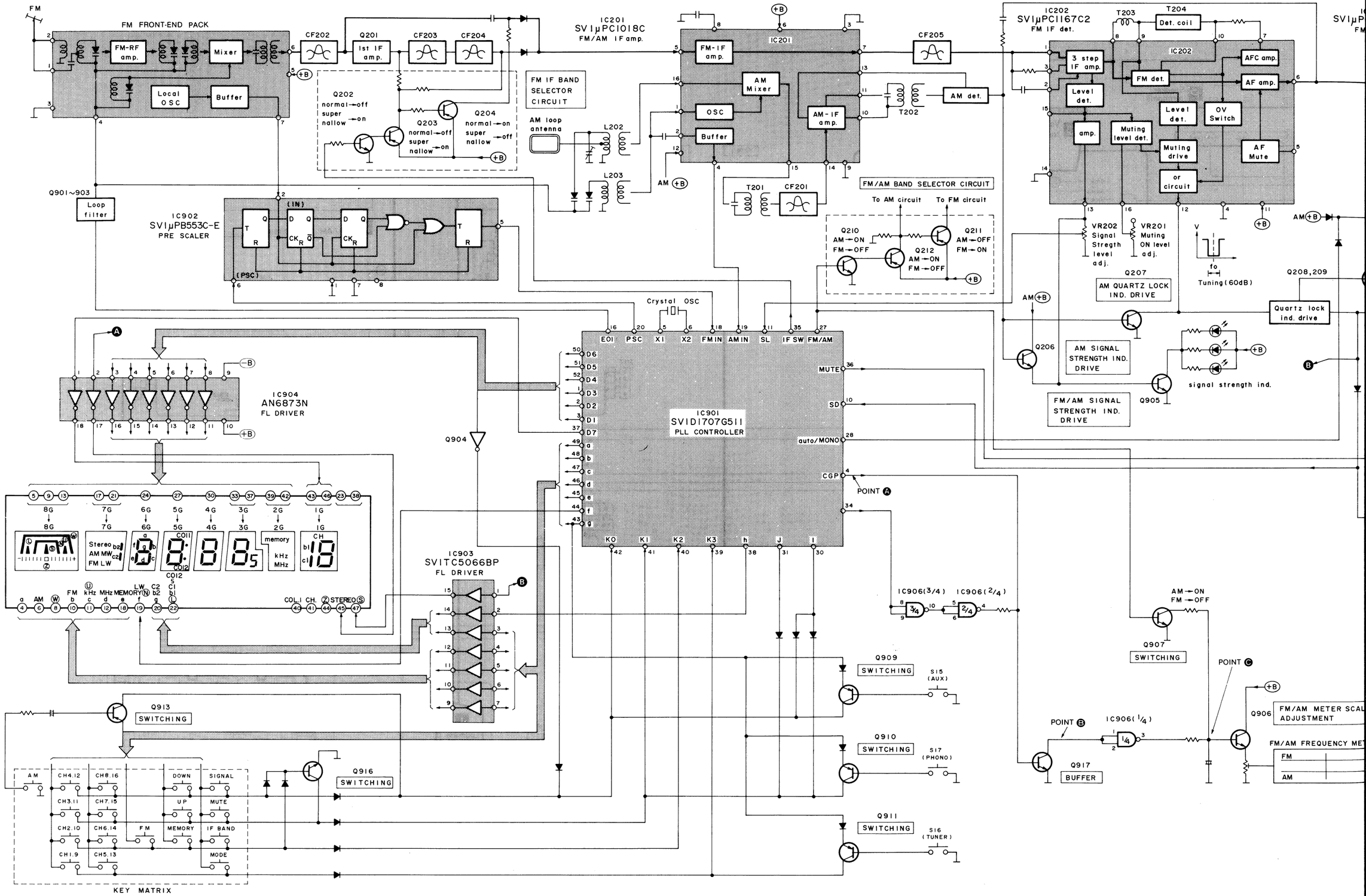
TAPE MONITOR IND. (tape 1) (tape 2) D834 D835 D836 D837

■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM




SPEAKERS
P Speaker terminals
Q Voltage comparator circuit
TAPE1
TAPE2 /EXT
GRAPHIC EQUALIZER
AUX/CD /VIDEO
PHONO
GND
PLAYBACK REC OUT
PLAYBACK REC OUT
IN
OUT
G Equalizer input selector control and volume control circuit
AM LOOP ANT
AM ANT
FM ANT
BALANCED 300Ω
75Ω
GND
A FM/AM tuner circuit
FM front-end pack
BATTERY CASE
C Analog frequency meter control circuit
M Main amplifier and regulator circuit
F Sound-expansion indicator
J107
J110
Gray
Brown
J123
J124
J101
J115
J118
J116
J104
J103
J105
J117
L301
R920
R992
R312
R310
J132
J114
J126
J118
J119
J125
J120
J109
J102
J115
J116
J113
J103
J104
aux/CD /video
tuner
phono
S15
S16
S17
S18
S19
S20
S21
D Input selectors and volume level indicator circuit
I Loudness control switch circuit
H Phono selector
S7
J2
J3
VR504
VR503
VR502
VR501
S11
S10
S9
S8
S6
S5
S4
S3
S2
S1
(Rec mode)
bass
treble
balance
subsonic filter
high filter
tone
dimension control
tape monitor
graphic equalizer
loudness
audio muting
phono selector
down
up
volume
31
32

■ BLOCK DIAGRAM



■ SCHEMATIC DIAGRAM Ⓐ

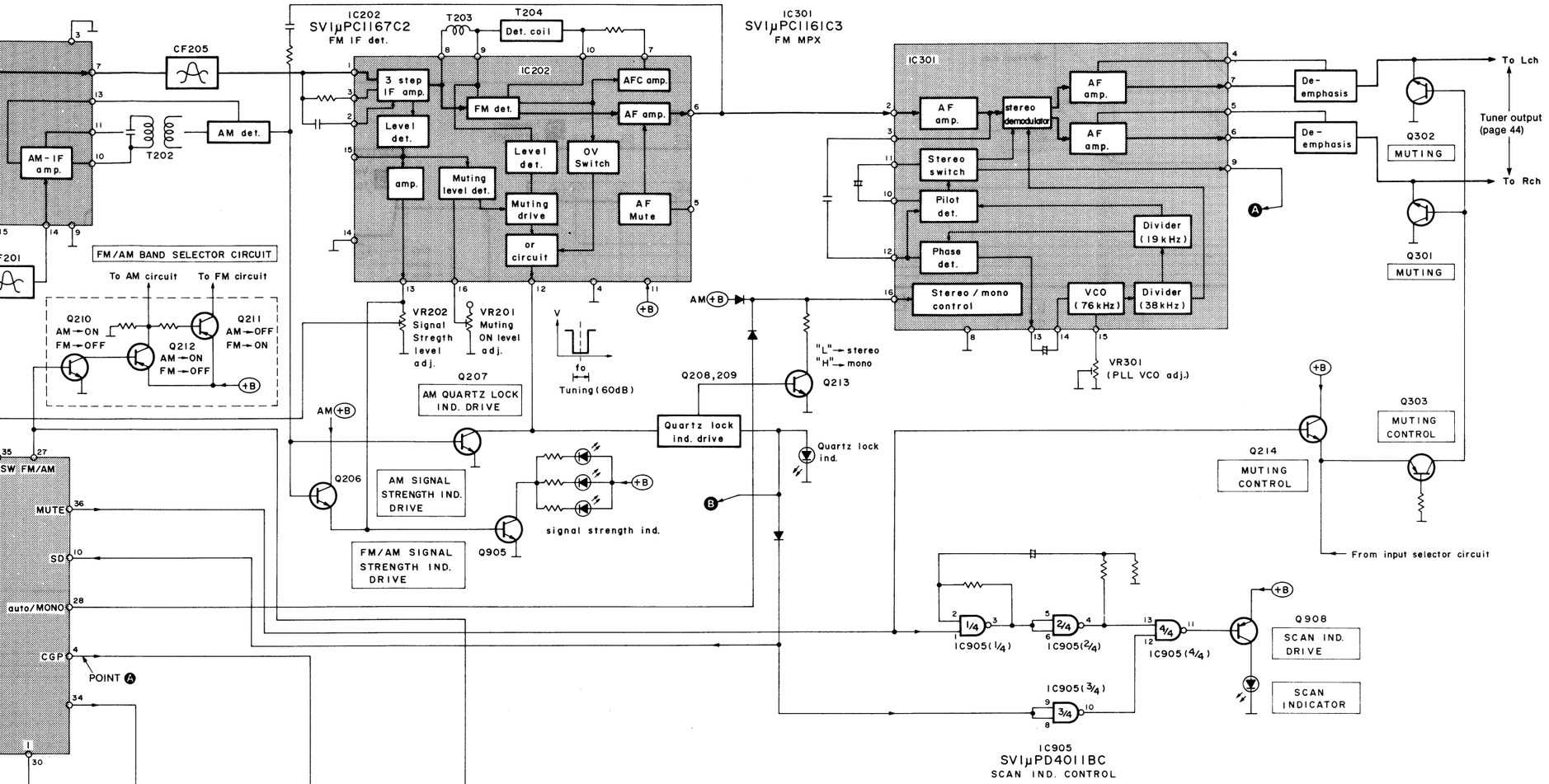
(FM/AM tuner circuit/FM/AM preset-tuning circuit/Input selectors and volume level indicator circuit)

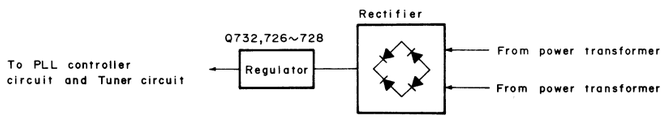
(This schematic diagram may be modified at any time with the development of new technology.)

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

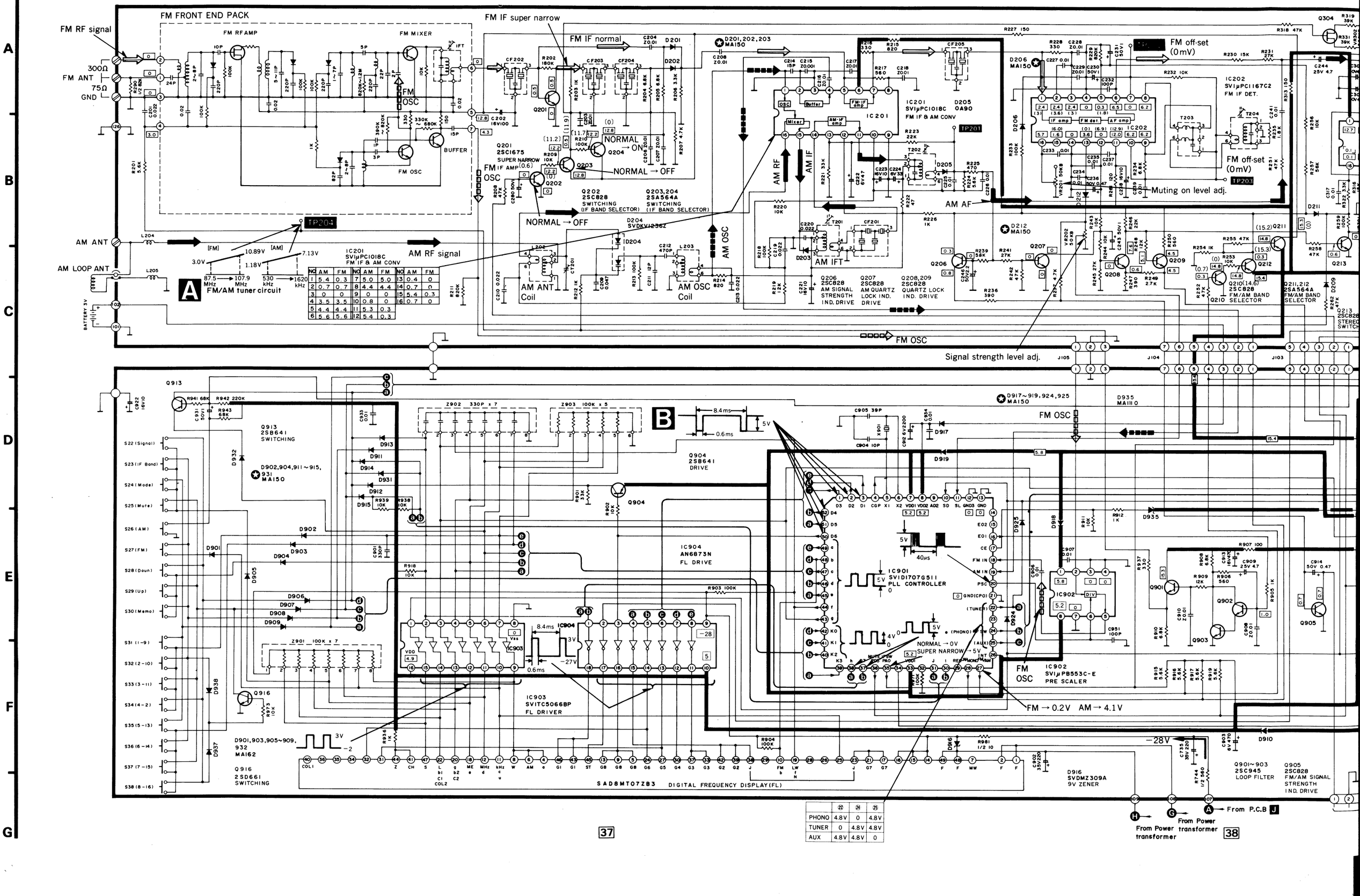
Notes 1

1. **S15~S17** : Input selectors switch in "**tuner**" position.
   - S15 —— aux
   - S16 —— tuner
   - S17 —— phono
2. **S18~S21** : Volume-control switch
   - S18 —— fase down
   - S19 —— down
   - S20 —— fast up
   - S21 —— up
3. **S22** : FM signal-strength indication switch. (off ◄► on)
4. **S23** : FM IF band selector switch. (normal ◄► narrow)
5. **S24** : FM mode switch (auto ◄► mono)
6. **S25** : FM muting off/scan level selector switch. (off ◄► scan level)
7. **S26, S27** : Band selectors switch.
   - S26 —— AM
   - S27 —— FM
8. **S28, 29** : Tuning switch
   - S28 —— down
   - S29 —— up
9. **S30** : Memory switch (manual ◄► auto)
10. **S31~S38** : Preset-tuning switch
    - S31—1ch./ 9ch. S32—2ch./10ch.
    - S33—3ch./11ch. S34—4ch./12ch.
    - S35—5ch./13ch. S36—6ch./14ch.
    - S37—7ch./15ch. S38—8ch./16ch.
11. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
    * Figures in ▭ stand for DC voltage in FM signal (monaural) reception mode.
    * Figures in ⌜ ⌟ stand for DC voltage in FM stereo signal reception mode.
    * Figures in ( ) stand for DC voltage in AM signal reception mode.
    * Figures in 〔 〕 stand for DC voltage in FM-IF super narrow condition mode.
    * Figures in < > stand for DC voltage in FM-RF narrow condition mode.
12. ▬▬ Positive (+B) voltage lines
    - ▒▒ AF signal lines
    - ⇨ FM signal ▫▫▷ FM OSC
    - ➡ AM signal ▪▪▶ AM OSC
    - ⟶ Negative (−B) voltage lines





POINT NO.	FREQUENCY	WAVE FORM
Ⓐ	87.5MHz	10μs, 380μs, 0.6V
	107.9MHz	300μs, 380μs, 0.6V
Ⓑ	87.5MHz	5V
	107.9MHz	5V
Ⓒ	87.5MHz	0.8V
	107.9MHz	4.6V



NO	AM	FM	NO	AM	FM	NO	AM	FM
1	5.4	0.3	7	5.0	5.0	13	0.4	0
2	0.7	0.7	8	4.4	4.4	14	0.7	0
3	0	0	9	0	0	15	5.4	0.3
4	3.5	3.5	10	0.8	0	16	0.7	0
5	4.4	4.4	11	5.3	0.3			
6	5.6	5.6	12	5.4	0.3			

IC201 SVIμPC1018C FM IF & AM CONV

	22	24	25
PHONO	4.8V	0	4.8V
TUNER	0	4.8V	4.8V
AUX	4.8V	4.8V	0

IC201 SVIμPC1018C FM IF & AM CONV

IC202 SVIμPC1167C2 FM IF DET.

IC301 SVIμPC1161C3 FM MPX

IC951 SVITA7612AP INDICATOR DRIVE

IC901 SVIDI707G511 PLL CONTROLLER

IC902 SVIμPB553C-E PRE SCALER

IC905 SVIμPD4011BC SCAN IND. CONTROL

IC906 SVIμPD4011BC FM/AM METER SCALE CONTROL

IC721 AN6875 COMPARATOR

FM off-set (0mV)

FM off-set (0mV)

Muting on level adj.

Separation adj.

19kHz output

"H" level in non-signal mode.
"L" level in signal reception.

MPX VCO adj.

Signal strength level adj.

Frequency meter adj.

MUTING ON → ON
MUTING OFF → OFF

AF signal (Rch)

AF signal (Lch)

FM OSC

FM → 0.2V AM → 4.1V

NORMAL → 0V
SUPER NARROW → 5V

Q206 2SC828 AM SIGNAL STRENGTH IND. DRIVE

Q207 2SC828 AM QUARTZ LOCK IND. DRIVE

Q208,209 2SC828 QUARTZ LOCK IND. DRIVE

Q210(14.6) 2SC828 FM/AM BAND SELECTOR

Q211,212 2SA564A FM/AM BAND SELECTOR

Q213 2SC828 STEREO/MONO SWITCHING

Q214 2SC828 MUTING CONTROL

Q301,302 2SC1383 MUTING

Q303 2SA564A MUTING CONTROL

Q304 2SK34 SEPARATION

Q901~903 2SC945 LOOP FILTER

Q905 2SC828 FM/AM SIGNAL STRENGTH IND. DRIVE

Q906 2SC828 FM/AM METER SCALE ADJUSTMENT

Q907 2SC828 SWITCHING FM → OFF AM → ON

Q908 2SA564A SCAN IND DRIVE

Q909~911 2SB641 SWITCHING

Q917 2SC828 BUFFER

Q721~725 2SA684NC SWITCHING (SOUND-EXPANSION INDICATOR)

D916 SVDMZ309A 9V ZENER

D955~964 LN41Y

D917~919,924,925 MA150

D920,910 MA150

D921~923 MA150

D930 MA150

D935 MA111 0

D733 LN217RP SOUND EXPANSION IN

INPUT SELECTOR (AUX) S15 (TUNER) S16 (PHONO) S17

VOLUME LEVEL IND

ANALOG FREQUENCY METER

(SPACE DIMENSION IND.)

	22	24	25
PHONO	4.8V	0	4.8V
TUNER	0	4.8V	4.8V
AUX	4.8V	4.8V	0

From P.C.B G

From P.C.B J

From P.C.B L

To P.C.B G

To P.C.B L

From Power transformer

From Power transformer

12 13 14 15 16 17 18 19 20 21

To P.C.B G

Q301,302 2SC1383 MUTING

Q302 Q301 Q303 2SA564A MUTING CONTROL

IC301 SVIμPC1161C3 FM MPX

19kHz output

TP301

'' level in non-signal mode.

' level in signal ception.

'CO adj.

AF signal (Rch)

AF signal (Lch)

N → ON
F → OFF

D

IC951 SVITA7612AP INDICATOR DRIVE

D951~954, 965~967 LN240CP

(AUX) (TUNER) (PHONO)

• 10.83V with all volume indicators turned ON.
• 0V with all volume indicators turned OFF.

• 10.95V with all volume indicators turned ON.
• 0V with all volume indicators turned OFF.

J115 To P.C.B G

J116 To P.C.B G

J109 To P.C.B G

INPUT SELECTOR (AUX) S15 (TUNER) S16 (PHONO) S17

IC952 IC953

IC952,953 SVITD6250IP INVERTER

(DOWN) S18 (FAST DOWN) S19 (FAST UP) S20 (UP) S21

VOLUME CONTROL R958 330K

D955 ~ 964 LN41Y

VOLUME LEVEL IND

PL951 PL952

To P.C.B K

To P.C.B J

To P.C.B M

J102 J101 To P.C.B G J113 J108 J114

IC721 AN6875 COMPARATOR

Q721 Q722 Q723 Q724 Q725

Q731 2SC828 SWITCHING

Q721~725 2SA684NC SWITCHING (SOUND-EXPANSION INDICATOR)

IC722 SVINJM4559DS SIGNAL DETECTOR

−15.3V

D722 MA150 D723 SVDMZ306A 6V ZENER

IC906 SVIμPD4011BC FM/AM METER SCALE CONTROL

IC905 SVIμPD4011BC SCAN IND. CONTROL

Q908 2SA564A SCAN IND DRIVE

PL901

ANALOG FREQUENCY METER

D930 MA150

IC906

Q917 2SC828 BUFFER

C

PL721 PL722 PL723 PL724 PL725

(SPACE DIMENSION IND.)

E

D733 LN217RP SOUND EXPANSION IND.

F

J112 To P.C.B L

Q726 Q728 Q727 Q732 2SK34 REGULATOR

Q726,727 2SC828 REGULATOR

Q728 2SD762 REGULATOR

Q729 2SD762 REGULATOR

Q730 2SD762 REGULATOR

Q999 2SC1383NC REGULATOR

D721 SVDMZ306A 6V ZENER

D724,725 SVDMZ306CI 6V ZENER

D726 MA1082M 8V ZENER

D999 MA1082M 8V ZENER

D727~732 SVDSRIK2 RECTIFIER

From Power transformer C

From Power transformer D

From Power transformer E

From Power transformer F

F2 2A 125V

39 40 41

■ RESISTORS & CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω (ohm), K = 1000Ω, M = 1000kΩ.
5. The unit of capacitance is μF (microfarad). P = 10^{-6} μF
6. Bracketed indications is Ref. No. columns specify the area. Parts without these indications can be used for all areas.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	J : ±5%
ERO : Metal film	S1 : 1/2W	G : ±2%
ERC : Solid	12 : 1/2W	K : ±10%

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage	Tolerance
ECEA : Electrolytic	OJ : 6.3V	C : ±0.25pF
ECCD : Ceramic	1A : 10V	J : ±5%
ECKD : Ceramic	1C : 16V	K : ±10%
ECQM : Polyester	1E : 25V	Z : +80%, −20%
ECQP : Polypropylene	1H : 50V	M : ±20%
EECW : Liquid electrolyte double layer capacitor	50 : 50V 25 : 25V 1V : 35V 1J : 63V 2R3 : 2.3V 2H : 500V	
ECG : Ceramic		

Ref. No.		Part No.	Value
RESISTORS			
R201	Ⓢ	ERD25FJ562	5.6K
R202	Ⓢ	ERD25TJ184	180K
R203	Ⓢ	ERD25FJ102	1K
R204,205	Ⓢ	ERD25FJ682	6.8K
R206	Ⓢ	ERD25FJ332	3.3K
R207	Ⓢ	ERD25FJ472	4.7K
R208	Ⓢ	ERD25TJ473	47K
R209	Ⓢ	ERD25FJ103	10K
R210	Ⓢ	ERD25TJ104	100K
R211	Ⓢ	ERD25TJ824	820K
R212	Ⓢ	ERD25FJ102	1K
R213	Ⓢ	ERD25TJ104	100K
R214,215	Ⓢ	ERD25FJ821	820
R216	Ⓢ	ERD25FJ331	330
R217	Ⓢ	ERD25FJ561	560
R218	Ⓢ	ERD25TJ104	100K
R219	Ⓢ	ERD25TJ123	12K
R220	Ⓢ	ERD25FJ103	10K
R221	Ⓢ	ERD25TJ333	33K
R222	Ⓢ	ERD25FJ470	47
R223	Ⓢ	ERD25TJ223	22K
R224	Ⓢ	ERD25FJ562	5.6K
R225	Ⓢ	ERD25FJ471	470
R226	Ⓢ	ERD25FJ102	1K
R227	Ⓢ	ERD25FJ151	150
R228	Ⓢ	ERD25FJ331	330
R229	Ⓢ	ERD25TJ824	820K
R230	Ⓢ	ERD25TJ153	15K
R231	Ⓢ	ERD25TJ273	27K
R232	Ⓢ	ERD25FJ103	10K

Ref. No.		Part No.	Value
RESISTORS			
R233	Ⓢ	ERD25TJ104	100K
R234	Ⓢ	ERD25FJ682	6.8K
R235	Ⓢ	ERD25FJ182	1.8K
R236	Ⓢ	ERD25FJ391	390
R237	Ⓢ	ERD25FJ472	4.7K
R239	Ⓢ	ERD25TJ563	56K
R241	Ⓢ	ERD25TJ273	27K
R242	Ⓢ	ERD25TJ473	47K
R243,244	Ⓢ	ERD25FJ103	10K
R245	Ⓢ	ERD25TJ273	27K
R246	Ⓢ	ERD25TJ223	22K
R247	Ⓢ	ERD25FJ391	390
R248	Ⓢ	ERD25TJ123	12K
R249	Ⓢ	ERD25FJ272	2.7K
R250	Ⓢ	ERD25FJ561	560
R251,252	Ⓢ	ERD25TJ473	47K
R253	Ⓢ	ERD25FJ103	10K
R254	Ⓢ	ERD25FJ102	1K
R255	Ⓢ	ERD25TJ473	47K
R256	Ⓢ	ERD25FJ103	10K
R257	Ⓢ	ERD25TJ563	56K
R258	Ⓢ	ERD25TJ473	47K
R259	Ⓢ	ERD25TJ104	100K
R260	Ⓢ	ERD25FJ392	3.9K
R261	Ⓢ	ERD25FJ121	120
R262	Ⓢ	ERD25TJ473	47K
R290	⚠	ERDS1FJ823	82K
R301,302		ERD25FJ103	10K
R303,304		ERD25TJ223	22K
R305,306		ERD25TJ473	47K

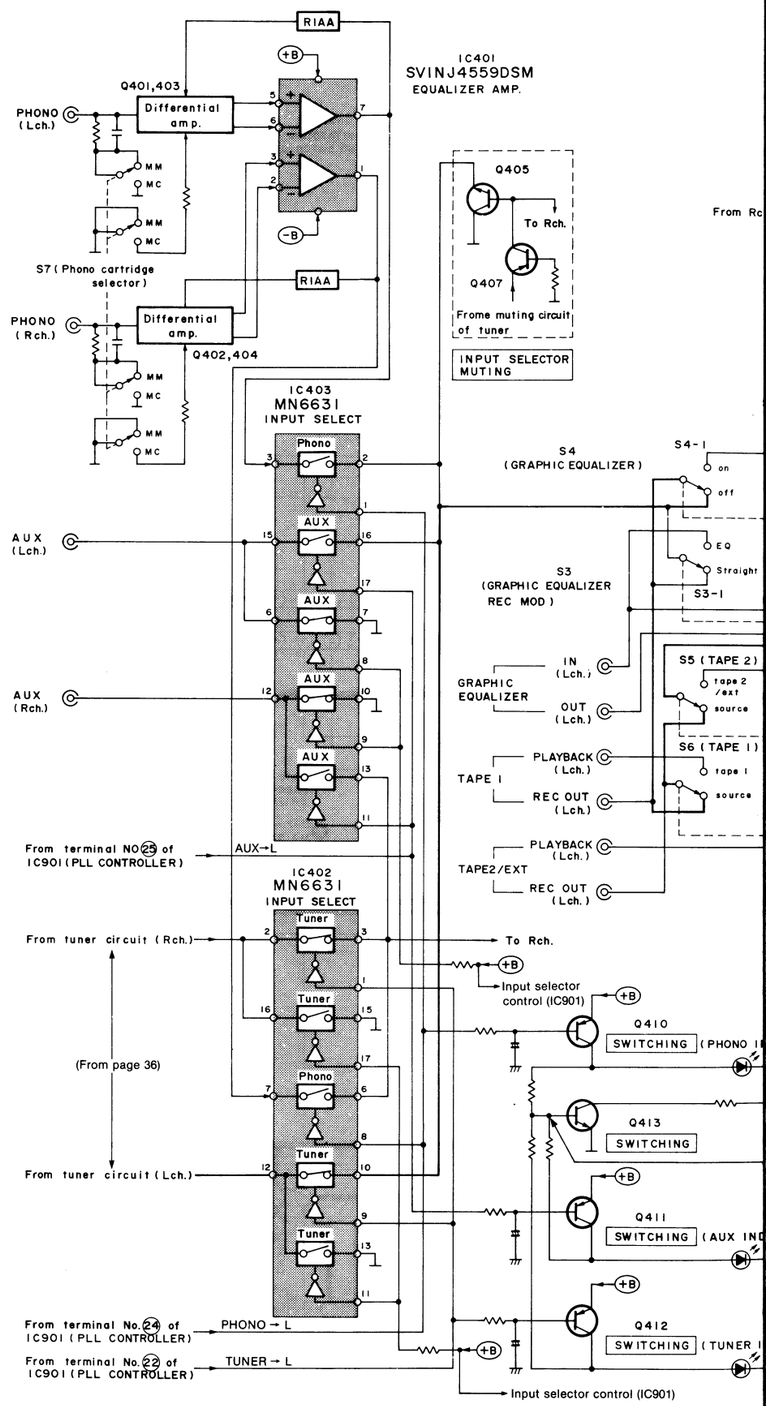
Ref. No.		Part No.	Value
RESISTORS			
R307,308	Ⓢ	ERD25FJ392	3.9K
R309,310	Ⓢ	ERD25FJ472	4.7K
R311,312	Ⓢ	ERD25FJ272	2.7K
R313	Ⓢ	ERD25FJ151	150
R314	Ⓢ	ERD25FJ103	10K
R315	Ⓢ	ERD25FJ221	220
R316	Ⓢ	ERD25TJ153	15K
R317	Ⓢ	ERD25FJ102	1K
R318	Ⓢ	ERD25TJ473	47K
R319	Ⓢ	ERD25TJ393	39K
R320	Ⓢ	ERD25TJ104	100K
R321	Ⓢ	ERD25FJ152	1.5K
R322	Ⓢ	ERD25FJ332	3.3K
R329,330	Ⓢ	ERD25TJ473	47K
R401,402	Ⓢ	ERD25TJ473	47K
R403,404	Ⓢ	ERD25FJ470	47
R405,406	Ⓢ	ERD25FJ220	22
R407,408		ER025CKF4701	4.7K
R409,410		ER025CKF4701	4.7K
R411,412	Ⓢ	ERD25FJ561	560
R331	Ⓢ	ERD25TJ393	39K
R413,414		ER025CKF4701	4.7K
R415,416	Ⓢ	ERD25FJ8R2	8.2
R417,418	Ⓢ	ERD25FJ131	130
R419,420	Ⓢ	ERD25FJ121	120
R421,422		ER025CKF6802	68K
R423,424		ER025CKF5601	5.6K
R425,426	Ⓢ	ERD25FJ561	560
R427,428	Ⓢ	ERD25TJ334	330K
R429	⚠	ERDS1FJ271	270
R431,432	Ⓢ	ERD25TJ824	820K
R433,434	Ⓢ	ERD25FJ331	330
R435,436	Ⓢ	ERD25TJ824	820K
R437,438	Ⓢ	ERD25FJ331	330
R439,440	Ⓢ	ERD25TJ824	820K
R441,442	Ⓢ	ERD25FJ331	330
R443,444	Ⓢ	ERD25TJ824	820K
R445,446	Ⓢ	ERD25FJ331	330
R449	Ⓢ	ERD25FJ182	1.8K
R451	Ⓢ	ERD25FJ822	8.2K
R452	Ⓢ	ERD25FJ222	2.2K
R453,454	Ⓢ	ERD25FJ101	100
R455,456	Ⓢ	ERD25TJ124	120K
R457,458	Ⓢ	ERD25TJ224	220K
R459,460	Ⓢ	ERD25TJ153	15K
R461,462	Ⓢ	ERD25FJ152	1.5K
R465	Ⓢ	ERD25TJ394	390K
R466,467	Ⓢ	ERD25FJ562	5.6K
R468,469	Ⓢ	ERD25FJ562	5.6K
R470	Ⓢ	ERD25FJ151	150
R471,472	Ⓢ	ERD25FJ682	6.8K
R473,474	Ⓢ	ERD25TJ183	18K
R475,476	Ⓢ	ERD25TJ224	220K
R477	Ⓢ	ERD25TJ224	220K
R478,479	Ⓢ	ERD25TJ123	12K
R480	Ⓢ	ERD25TJ123	12K
R481,482	Ⓢ	ERD25FJ103	10K
R483,484	Ⓢ	ERD25FJ562	5.6K
R485,486	Ⓢ	ERD25FJ562	5.6K
R487,488	Ⓢ	ERD25FJ562	5.6K
R489,490	⚠	ERD25FJ100	10
R491		ERG1ANJ181	180
R492,493		ERD25FJ182	1.8K
R501,502	Ⓢ	ERD25TJ153	15K
R503,504	Ⓢ	ERD25FJ102	1K
R505,506	Ⓢ	ERD25TJ224	220K
R507,508	Ⓢ	ERD25TJ224	220K
R509,510	Ⓢ	ERD25TJ124	120K
R511,512	Ⓢ	ERD25FJ472	4.7K
R513,514	Ⓢ	ERD25FJ562	5.6K
R515,516	Ⓢ	ERD25FJ822	8.2K
R517,518	Ⓢ	ERD25TJ183	18K
R519,520	Ⓢ	ERD25FJ272	2.7K
R521,522	Ⓢ	ERD25FJ272	2.7K
R523,524	Ⓢ	ERD25FJ682	6.8K
R525,526	Ⓢ	ERD25FJ472	4.7K
R527,528	Ⓢ	ERD25TJ273	27K
R529,530	Ⓢ	ERD25TJ273	27K
R531,532	Ⓢ	ERD25TJ273	27K
R533,534	Ⓢ	ERD25TJ223	22K
R535,536	Ⓢ	ERD25TJ183	18K

Ref. No.		Part No.	Value
RESISTORS			
R537,538	Ⓢ	ERD25FJ222	2.2K
R539,540	Ⓢ	ERD25FJ682	6.8K
R541,542	Ⓢ	ERD25FJ332	3.3K
R543,544	Ⓢ	ERD25TJ223	22K
R545,546	Ⓢ	ERD25TJ223	22K
R547,548	Ⓢ	ERD25FJ102	1K
R549,550	Ⓢ	ERD25TJ473	47K
R551,552	Ⓢ	ERD25TJ224	220K
R553,554	Ⓢ	ERD25TJ474	470K
R555,556	Ⓢ	ERD25FJ102	1K
R557,558	Ⓢ	ERD25TJ474	470K
R559,560	Ⓢ	ERD25TJ104	100K
R561,562	Ⓢ	ERD25FJ821	820
R563,564	Ⓢ	ERD25FJ681	680
R565,566	Ⓢ	ERD25TJ123	12K
R567,568	Ⓢ	ERD25FJ272	2.7K
R569,570	Ⓢ	ERD25TJ153	15K
R571,572	Ⓢ	ERD25FJ272	2.7K
R575,576	Ⓢ	ERD25TJ153	15K
R577,578	Ⓢ	ERD25FJ102	1K
R579,580	Ⓢ	ERD25TJ474	470K
R581,582	Ⓢ	ERD25TJ824	820K
R583,584	Ⓢ	ERD25TJ224	220K
R585,586	Ⓢ	ERD25FJ102	1K
R601,602	Ⓢ	ERD25FJ221	220
R603,604	Ⓢ	ERD25TJ224	220K
R605,606		ER025CKF4702	47K
R607,608	Ⓢ	ERD25FJ682	6.8K
R609,610	Ⓢ	ERD25FJ682	6.8K
R611,612	Ⓢ	ERD25FJ330	33
R613,614	Ⓢ	ERD25FJ103	10K
R615,616	Ⓢ	ERD25FJ391	390
R617,618	Ⓢ	ERD25FJ682	6.8K
R619,620		ERD25FJ122	1.2K
R621,622	Ⓢ	ERD25FJ102	1K
R623,624	Ⓢ	ERD25FJ270	27
R625,626	Ⓢ	ERD25FJ270	27
R627,628	⚠Ⓢ	ERD25TJ223	22K
R629,630	Ⓢ	ERD25FJ472	4.7K
R631,632	Ⓢ	ERD25FJ122	1.2K
R633,634	Ⓢ	ERD25FJ102	1K
R635,636	Ⓢ	ERD25FJ102	1K
R637,638	⚠	ERDS1FJ101	100
R639,640	Ⓢ	ERD25FJ332	3.3K
R641,642	Ⓢ	ERD25FJ821	820
R643,644	⚠Ⓢ	ERD25FJ6R8	6.8
R645,646	Ⓢ	ERD25FJ102	1K
R647,648	⚠	ERDSIFJ101	100
R649	⚠	ERDSIFJ101	100
R650,651	⚠	ERDSIFJ101	100
R652	⚠	ERDSIFJ101	100
R653,654	⚠Ⓢ	ERD25FJ102	1K
R655,656	Ⓢ	ERD25TJ823	82K
R657,658	⚠Ⓢ	ERD25TJ474	470K
R659,660	⚠Ⓢ	ERD25TJ474	470K
R661,662	⚠	ERDS1FJ5R6	5.6
R663,664	⚠	ERDS1FJ5R6	5.6
R665,666	⚠	ERDS1FJ331	330
R667,668	⚠	ERDS1FJ2R2	2.2
R669,670	⚠	ERDS1FJ2R2	2.2
R671,672	Ⓢ	ERD25FJ331	330
R673,674	Ⓢ	ERD25FJ101	100
R675,676		ERG1ANJ100	10
R677,678	Ⓢ	ERG2ANJ100	10
R679,680	Ⓢ	ERD25TJ104	100K
R681,682	Ⓢ	ERD25TJ104	100K
R683,684	Ⓢ	ERD25TJ223	22K
R685,686		ERG2ANJ331	330
R687,688	Ⓢ	ERD25TJ123	12K
R701	⚠Ⓢ	ERC12ZGK335	33M
R702	⚠Ⓢ	ERD25TJ183	18K
R703	Ⓢ	ERD25TJ153	15K
R704	⚠Ⓢ	ERD25TJ154	150K
R705	⚠	ERDS1FJ100	10
R706		ERG2ANJ471	470
(M)			
R706		ERG2ANJ151	150
(MC)			
R707		ERG1ANJ182	1.8K
(M)			

Ref. No.		Part No.	Value
RESISTORS			
R707		ERG1ANJ222	2.2K
(MC)			
R708		ERG2ANJ331	330
R709		ERG1ANJ182	1.8K
R710,711	⚠Ⓢ	ERG2ANJ680	68
R712,713	Ⓢ	ERD25FJ222	2.2K
R714	⚠	ERG1ANJ152	1.5K
R715	⚠	ERDSIFJ560	56
R721	Ⓢ	ERD25FJ102	1K
R722	Ⓢ	ERD25TJ123	12K
R723	Ⓢ	ERD25FJ822	8.2K
R724	Ⓢ	ERD25FJ332	3.3K
R725	Ⓢ	ERD25FJ822	8.2K
R726	Ⓢ	ERD25FJ472	4.7K
R727	Ⓢ	ERD25FJ822	8.2K
R728	Ⓢ	ERD25TJ184	180K
R729	Ⓢ	ERD25TJ824	820K
R730	Ⓢ	ERD25TJ333	33K
R731	Ⓢ	ERD25TJ123	12K
R732	Ⓢ	ERD25TJ473	47K
R733	Ⓢ	ERD25TJ223	22K
R734	Ⓢ	ERD25FJ272	2.7K
R735	Ⓢ	ERD25FJ222	2.2K
R736	Ⓢ	ERD25FJ681	680
R737		ERG2ANJ271	270
R738	Ⓢ	ERD25FJ821	820
R739		ERG1ANJ100	10
R740	Ⓢ	ERD25FJ102	1K
R741		ERX1ANJ3R3	3.3
R742	Ⓢ	ERX2ANJ6R8	6.8
R743	Ⓢ	ERD25FJ821	820K
R744	⚠	ERDS1FJ561	560
R745	Ⓢ	ERD25FJ181	180
R751	Ⓢ	ERD25FJ102	1K
R752	Ⓢ	ERD25FJ472	4.7K
R755	Ⓢ	ERD25TJ473	47K
R756	Ⓢ	ERD25FJ332	3.3K
R757	Ⓢ	ERD25FJ470	47
R758	Ⓢ	ERD25FJ332	3.3K
R759	Ⓢ	ERD25FJ470	47
R760,761	Ⓢ	ERD25FJ562	5.6K
R762	Ⓢ	ERD25TJ334	330K
R763	Ⓢ	ERD25TJ824	820K
R764	Ⓢ	ERD25FJ821	820
R765,766	Ⓢ	ERD25FJ682	6.8K
R767	Ⓢ	ERD25FJ682	6.8K
R768,769	Ⓢ	ERD25TJ223	22K
R770	Ⓢ	ERD25FJ682	6.8K
R771	Ⓢ	ERD25TJ824	820K
R772	Ⓢ	ERD25FJ821	820
R773	Ⓢ	ERD25TJ334	330K
R775	Ⓢ	ERD25TJ333	33K
R776	Ⓢ	ERD25TJ473	47K
R777	Ⓢ	ERD25TJ184	180K
R778,779	Ⓢ	ERD25TJ823	82K
R780	Ⓢ	ERD25TJ333	33K
R781	Ⓢ	ERD25TJ223	22K
R782	Ⓢ	ERD25TJ823	82K
R783,784	Ⓢ	ERD25TJ223	22K
R785,786	Ⓢ	ERD25TJ223	22K
R787	Ⓢ	ERD25TJ223	22K
R801	Ⓢ	ERD25TJ223	22K
R802	Ⓢ	ERD25FJ332	3.3K
R803	Ⓢ	ERD25FJ101	100
R804	Ⓢ	ERD25FJ121	120
R805	Ⓢ	ERD25FJ822	8.2K
R806	Ⓢ	ERD25FJ101	100
R807	Ⓢ	ERD25FJ151	150
R808	Ⓢ	ERD25FJ822	8.2K
R809	Ⓢ	ERD25FJ222	2.2K
R810	Ⓢ	ERD25FJ822	8.2K
R811	Ⓢ	ERD25FJ101	100
R812	Ⓢ	ERD25FJ822	8.2K
R813	Ⓢ	ERD25FJ101	100
R815	Ⓢ	ERD25FJ271	270
R816	Ⓢ	ERD25TJ183	18K
R817	Ⓢ	ERD25FJ103	10K
R818	Ⓢ	ERD25TJ183	18K
R819	Ⓢ	ERD25FJ103	10K
R821,822	Ⓢ	ERD25TJ123	12K

Ref. No.		Part No.	Value
RESISTORS			
R823,824	Ⓢ	ERD25TJ183	18K
R825,826	Ⓢ	ERD25TJ333	33K
R827,828	Ⓢ	ERD25TJ223	22K
R829,830	Ⓢ	ERD25FJ272	2.7K
R831,832	Ⓢ	ERD25TJ104	100K
R833,834	Ⓢ	ERD25FJ103	10K
R835	Ⓢ	ERD25FJ103	10K
R836,837	Ⓢ	ERD25FJ472	4.7K
R838	Ⓢ	ERD25FJ472	4.7K
R839,840	Ⓢ	ERD25TJ183	18K
R841,842	Ⓢ	ERD25FJ562	5.6K
R843,844	Ⓢ	ERD25TJ183	18K
R845	Ⓢ	ERD25FJ472	4.7K
R846	Ⓢ	ERD25FJ222	2.2K
R847,848	Ⓢ	ERD25FJ103	10K
R849	Ⓢ	ERD25FJ103	10K
R850,851	Ⓢ	ERD25FJ271	270
R852	Ⓢ	ERD25FJ271	270
R853,854	Ⓢ	ERD25FJ121	120
R855	⚠	ERDS1FJ681	680
R856	Ⓢ	ERD25FJ471	470
R857	Ⓢ	ERD25FJ151	150
R858	⚠	ERDS1FJ471	470
R859,860	Ⓢ	ERD25FJ101	100
R861	Ⓢ	ERD25FJ151	150
R901	Ⓢ	ERD25TJ333	33K
R902	Ⓢ	ERD25FJ103	10K
R903,904	Ⓢ	ERD25TJ104	100K
R905	Ⓢ	ERD25FJ102	1K
R906	Ⓢ	ERD25FJ561	560
R907	Ⓢ	ERD25FJ101	100
R908	Ⓢ	ERD25FJ682	6.8K
R909	Ⓢ	ERD25TJ123	12K
R910	Ⓢ	ERD25FJ682	6.8K
R911	Ⓢ	ERD25FJ103	10K
R912	Ⓢ	ERD25FJ102	1K
R915,916	Ⓢ	ERD25FJ562	5.6K
R917	Ⓢ	ERD25FJ562	5.6K
R918	Ⓢ	ERD25FJ103	10K
R919	Ⓢ	ERD25FJ562	5.6K
R920	Ⓢ	ERD25FJ103	10K
R921	Ⓢ	ERD25TJ224	220K
R922	Ⓢ	ERD25TJ154	150K
R923	Ⓢ	ERD25TJ104	100K
R924,925	Ⓢ	ERD25TJ824	820K
R926	Ⓢ	ERD25TJ824	820K
R927,928	Ⓢ	ERD25TJ224	220K
R929	Ⓢ	ERD25TJ224	220K
R930	Ⓢ	ERD25TJ104	100K
R931	Ⓢ	ERD25TJ473	47K
R932	Ⓢ	ERD25TJ224	220K
R933	Ⓢ	ERD25TJ333	33K
R934	Ⓢ	ERD25FJ151	150
R935	Ⓢ	ERD25FJ121	120
R936	Ⓢ	ERD25FJ102	1K
R937	Ⓢ	ERD25FJ331	330
R938,939	Ⓢ	ERD25FJ103	10K
R941	Ⓢ	ERD25TJ683	68K
R942	Ⓢ	ERD25TJ224	220K
R943	Ⓢ	ERD25TJ683	68K
R951	Ⓢ	ERD25FJ101	100
R953	Ⓢ	ERD25FJ151	150
R954	Ⓢ	ERD25FJ561	560
R955	Ⓢ	ERD25TJ393	39K
R956	Ⓢ	ERD25FJ331	330
R957	Ⓢ	ERD25FJ561	560
R958	Ⓢ	ERD25TJ334	330K
R961	Ⓢ	ERD25TJ224	220K
R962	Ⓢ	ERD25TJ333	33K
R971,972	Ⓢ	ERD25TJ104	100K
R973	Ⓢ	ERD25FJ103	10K
R980	Ⓢ	ERD25FJ103	10K
R981	⚠	ERDS1FJ100	10
R982	⚠	ERDS1FJ330	33
R990	⚠	ERDS1FJ4R7	4.7
R994	Ⓢ	ERD25FJ152	1.5K
R995,996	⚠	ERDS1FJ101	100
R997,998	⚠	ERDS1FJ101	100
R999	⚠	ERDS1FJ101	100

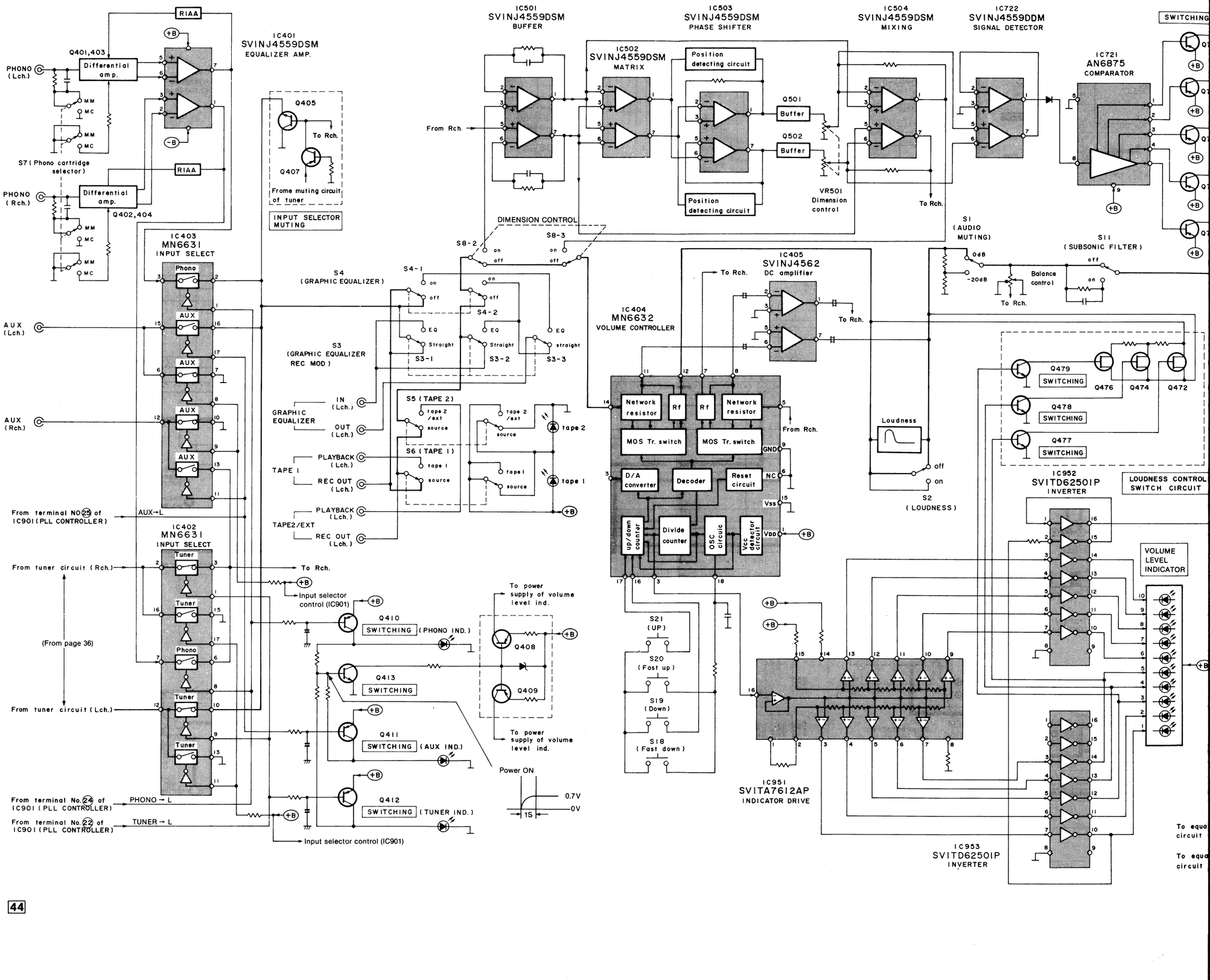
■ BLOCK DIAGRAM

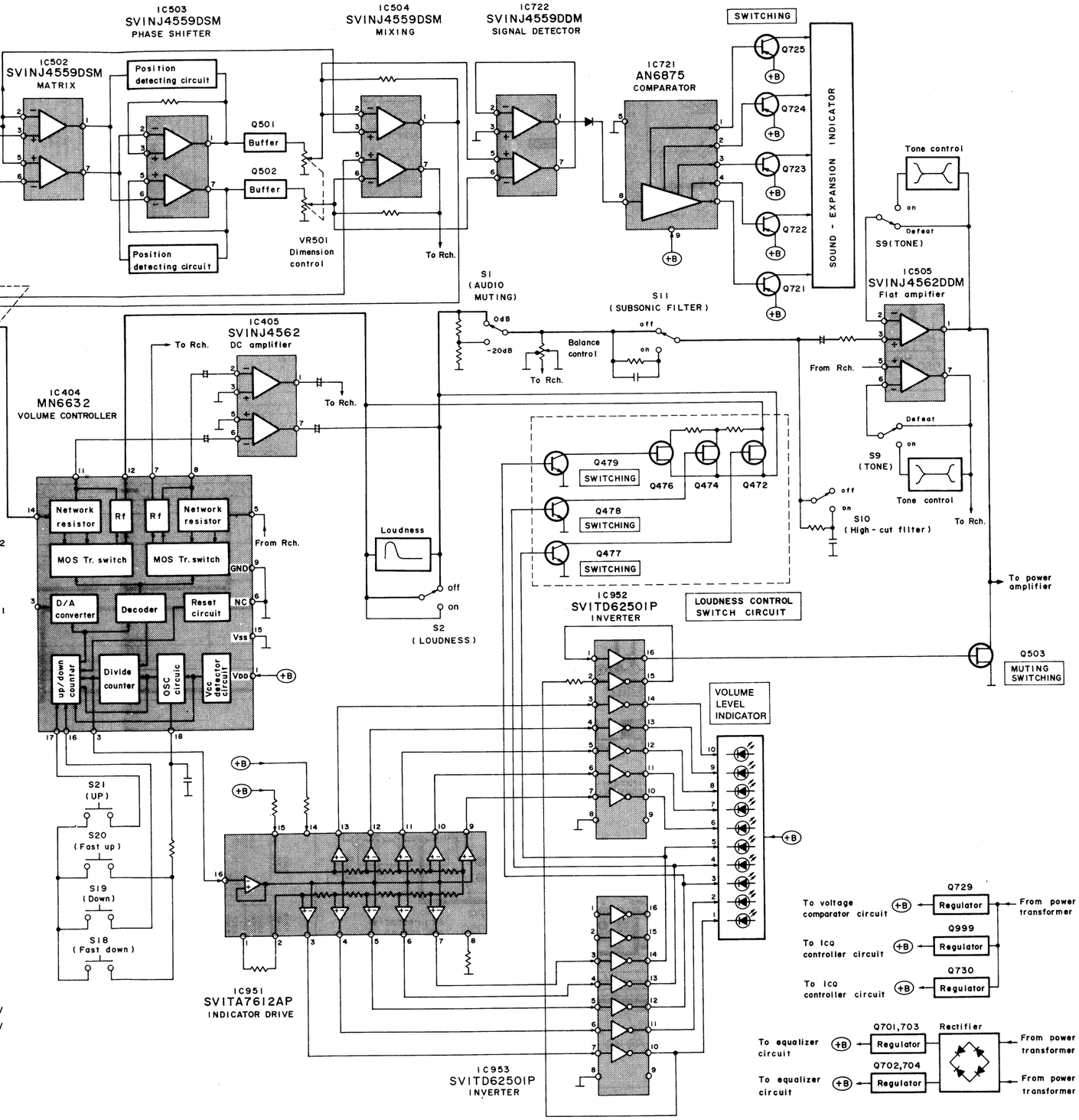


No.	Part No.	Value
STORS		
	ERG1ANJ222	2.2K
	ERG2ANJ331	330
	ERG1ANJ182	1.8K
11 △ Ⓢ	ERG2ANJ680	68
13 Ⓢ	ERD25FJ222	2.2K
△	ERG1ANJ152	1.5K
△	ERDSIFJ560	56
Ⓢ	ERD25FJ102	1K
Ⓢ	ERD25TJ123	12K
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25FJ332	3.3K
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25FJ472	4.7K
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25TJ184	180K
Ⓢ	ERD25TJ824	820K
Ⓢ	ERD25TJ333	33K
Ⓢ	ERD25TJ123	12K
Ⓢ	ERD25TJ473	47K
Ⓢ	ERD25TJ223	22K
Ⓢ	ERD25FJ272	2.7K
Ⓢ	ERD25FJ222	2.2K
Ⓢ	ERD25FJ681	680
	ERG2ANJ271	270
Ⓢ	ERD25FJ821	820
	ERG1ANJ100	10
Ⓢ	ERD25FJ102	1K
	ERX1ANJ3R3	3.3
Ⓢ	ERX2ANJ6R8	6.8
Ⓢ	ERD25FJ821	820K
△	ERDS1FJ561	560
Ⓢ	ERD25FJ181	180
Ⓢ	ERD25FJ102	1K
Ⓢ	ERD25FJ472	4.7K
Ⓢ	ERD25TJ473	47K
Ⓢ	ERD25FJ332	3.3K
Ⓢ	ERD25FJ470	47
Ⓢ	ERD25FJ332	3.3K
Ⓢ	ERD25FJ470	47
61 Ⓢ	ERD25FJ562	5.6K
Ⓢ	ERD25TJ334	330K
Ⓢ	ERD25TJ824	820K
Ⓢ	ERD25FJ821	820
66 Ⓢ	ERD25FJ682	6.8K
Ⓢ	ERD25FJ682	6.8K
69 Ⓢ	ERD25TJ223	22K
Ⓢ	ERD25FJ682	6.8K
Ⓢ	ERD25TJ824	820K
Ⓢ	ERD25FJ821	820
Ⓢ	ERD25TJ334	330K
Ⓢ	ERD25TJ333	33K
Ⓢ	ERD25TJ473	47K
79 Ⓢ	ERD25TJ184	180K
Ⓢ	ERD25TJ823	82K
Ⓢ	ERD25TJ333	33K
Ⓢ	ERD25TJ223	22K
Ⓢ	ERD25TJ823	82K
84 Ⓢ	ERD25TJ223	22K
86 Ⓢ	ERD25TJ223	22K
Ⓢ	ERD25TJ223	22K
Ⓢ	ERD25TJ223	22K
Ⓢ	ERD25FJ332	3.3K
Ⓢ	ERD25FJ101	100
Ⓢ	ERD25FJ121	120
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25FJ101	100
Ⓢ	ERD25FJ151	150
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25FJ222	2.2K
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25FJ101	100
Ⓢ	ERD25FJ822	8.2K
Ⓢ	ERD25FJ101	100
Ⓢ	ERD25FJ271	270
Ⓢ	ERD25TJ183	18K
Ⓢ	ERD25FJ103	10K
Ⓢ	ERD25TJ183	18K
Ⓢ	ERD25FJ103	10K
22 Ⓢ	ERD25TJ123	12K

Ref. No.	Part No.	Value
RESISTORS		
R823,824 Ⓢ	ERD25TJ183	18K
R825,826 Ⓢ	ERD25TJ333	33K
R827,828 Ⓢ	ERD25TJ223	22K
R829,830 Ⓢ	ERD25FJ272	2.7K
R831,832 Ⓢ	ERD25TJ104	100K
R833,834 Ⓢ	ERD25TJ103	10K
R835 Ⓢ	ERD25FJ103	10K
R836,837 Ⓢ	ERD25FJ472	4.7K
R838 Ⓢ	ERD25FJ472	4.7K
R839,840 Ⓢ	ERD25TJ183	18K
R841,842 Ⓢ	ERD25FJ562	5.6K
R843,844 Ⓢ	ERD25TJ183	18K
R845 Ⓢ	ERD25FJ472	4.7K
R846 Ⓢ	ERD25FJ222	2.2K
R847,848 Ⓢ	ERD25FJ103	10K
R849 Ⓢ	ERD25FJ103	10K
R850,851 Ⓢ	ERD25FJ271	270
R852 Ⓢ	ERD25FJ271	270
R853,854 Ⓢ	ERD25FJ121	120
R855 △	ERDS1FJ681	680
R856 Ⓢ	ERD25FJ471	470
R857 Ⓢ	ERD25FJ151	150
R858 △	ERDS1FJ471	470
R859,860 Ⓢ	ERD25FJ101	100
R861 Ⓢ	ERD25FJ151	150
R901 Ⓢ	ERD25TJ333	33K
R902 Ⓢ	ERD25FJ103	10K
R903,904 Ⓢ	ERD25TJ104	100K
R905 Ⓢ	ERD25FJ102	1K
R906 Ⓢ	ERD25FJ561	560
R907 Ⓢ	ERD25FJ101	100
R908 Ⓢ	ERD25FJ682	6.8K
R909 Ⓢ	ERD25TJ123	12K
R910 Ⓢ	ERD25FJ682	6.8K
R911 Ⓢ	ERD25FJ103	10K
R912 Ⓢ	ERD25FJ102	1K
R915,916 Ⓢ	ERD25FJ562	5.6K
R917 Ⓢ	ERD25FJ562	5.6K
R918 Ⓢ	ERD25FJ103	10K
R919 Ⓢ	ERD25FJ562	5.6K
R920 Ⓢ	ERD25FJ103	10K
R921 Ⓢ	ERD25TJ224	220K
R922 Ⓢ	ERD25TJ154	150K
R923 Ⓢ	ERD25TJ104	100K
R924,925 Ⓢ	ERD25TJ824	820K
R926 Ⓢ	ERD25TJ824	820K
R927,928 Ⓢ	ERD25TJ224	220K
R929 Ⓢ	ERD25TJ224	220K
R930 Ⓢ	ERD25TJ104	100K
R931 Ⓢ	ERD25TJ473	47K
R932 Ⓢ	ERD25TJ224	220K
R933 Ⓢ	ERD25TJ333	33K
R934 Ⓢ	ERD25FJ151	150
R935 Ⓢ	ERD25FJ121	120
R936 Ⓢ	ERD25FJ102	1K
R937 Ⓢ	ERD25FJ331	330
R938,939 Ⓢ	ERD25FJ103	10K
R941 Ⓢ	ERD25TJ683	68K
R942 Ⓢ	ERD25TJ224	220K
R943 Ⓢ	ERD25TJ683	68K
R951 Ⓢ	ERD25FJ101	100
R953 Ⓢ	ERD25FJ151	150
R954 Ⓢ	ERD25FJ561	560
R955 Ⓢ	ERD25TJ393	39K
R956 Ⓢ	ERD25FJ331	330
R957 Ⓢ	ERD25FJ561	560
R958 Ⓢ	ERD25TJ334	330K
R961 Ⓢ	ERD25TJ224	220K
R962 Ⓢ	ERD25TJ333	33K
R971,972 Ⓢ	ERD25TJ104	100K
R973 Ⓢ	ERD25FJ103	10K
R980 Ⓢ	ERD25FJ103	10K
R981 △	ERDS1FJ100	10
R982 △	ERDS1FJ330	33
R990 △	ERDS1FJ4R7	4.7
R994 Ⓢ	ERD25FJ152	1.5K
R995,996 △	ERDS1FJ101	100
R997,998 △	ERDS1FJ101	100
R999 △	ERDS1FJ101	100

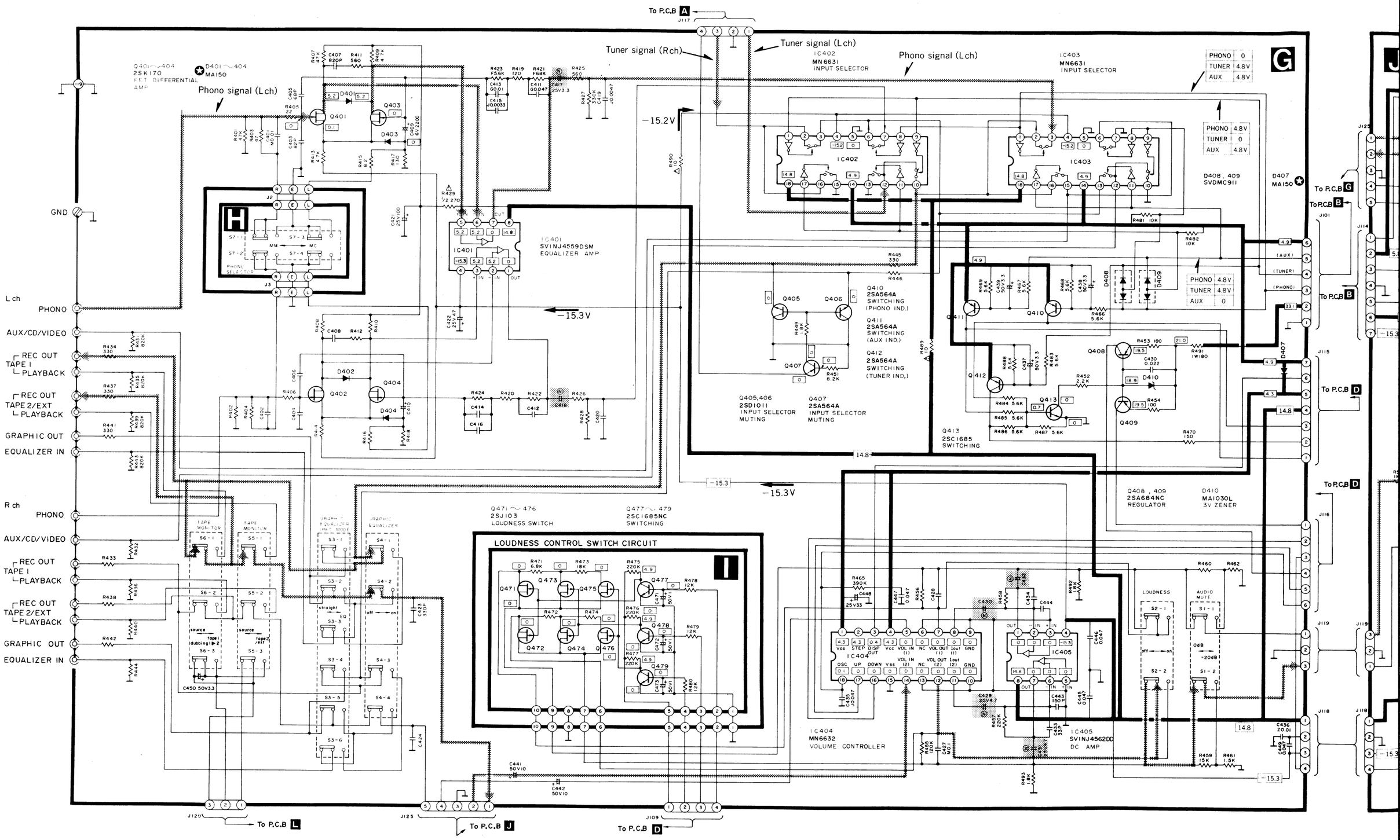
■ BLOCK DIAGRAM

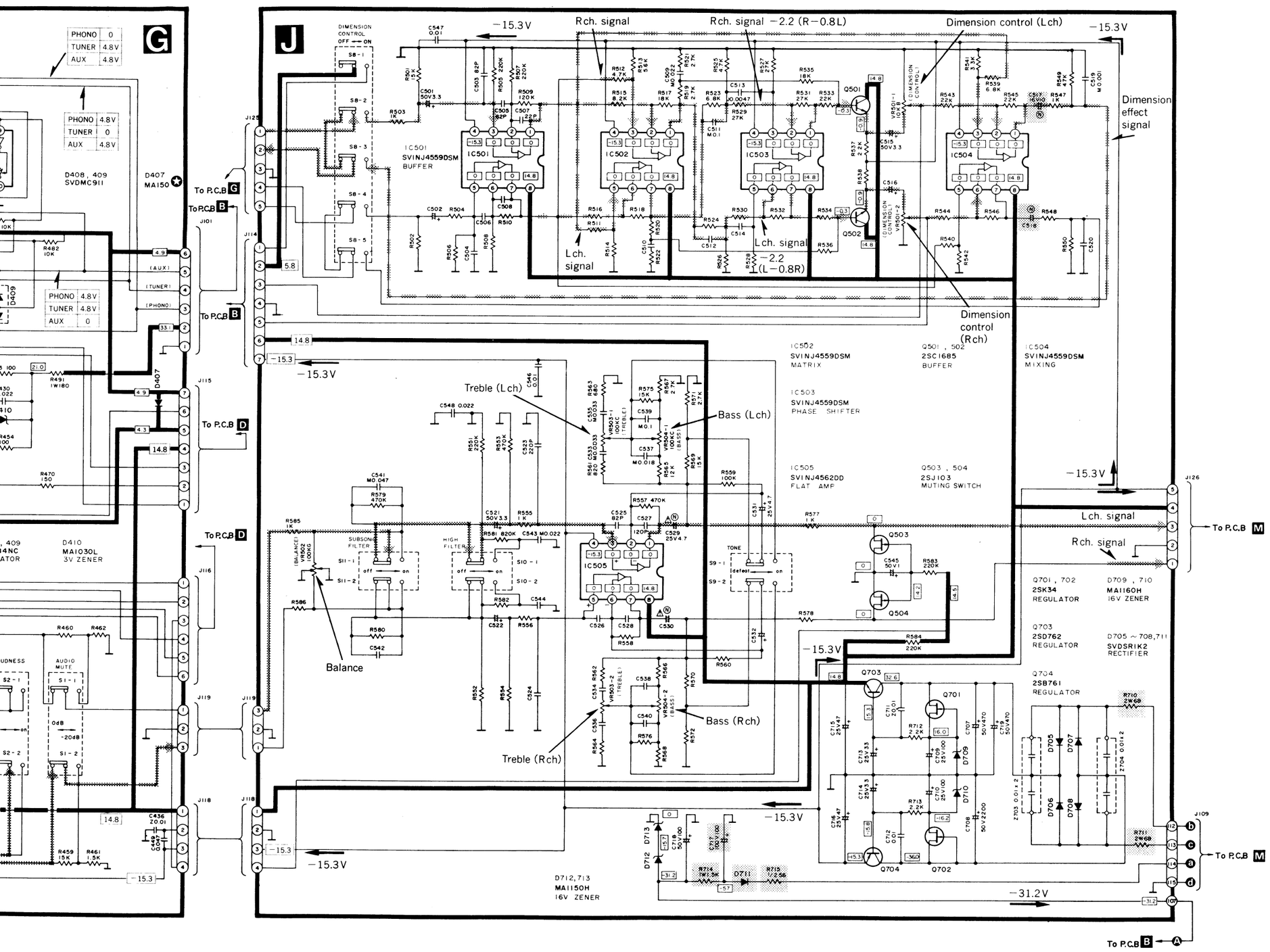




■ FUNCTION OF TERMINAL (VOLUME CONTROLLER IC404)

Pin No.	Mark	Name of block	Description of terminal
1	VDD	Power supply input terminal	Apply 4.3V
2	STEP	Test input terminal	Terminal for testing LSI
3	DISP OUT	Display output terminal	Volume level indicator drive output terminal
4	Vcc	Power supply input terminal	Apply 4.3V
5	VOL IN (1)	Volume input terminal (1)	L-channel volume input terminal
6	NC	Non-connection	Ground
7	VOL OUT (1)	Volume output terminal (1)	L-channel volume output terminal
8	Iout (1)	Current output terminal (1)	L-channel volume current output and feedback resistor connection terminal
9	GND (1)	Ground terminal (1)	L-channel ground terminal
10	GND (2)	Ground terminal (2)	R-channel ground terminal
11	Iout (2)	Current output terminal (2)	R-channel volume current output and feedback resistor connection terminal
12	VOL OUT (2)	Volume output terminal (2)	R-channel volume output terminal
13	NC	Non-connection	Ground
14	VOL IN (2)	Volume input terminal (2)	R-channel volume input terminal
15	Vss	Power supply input terminal	Ground (0V)
16	DOWN	Volume DOWN terminal	It serves to control volume DOWN. Volume down operation with "H" level input voltage applied.
17	UP	Volume UP terminal	It serves to control volume UP. Volume up operation with "H" level input voltage applied.
18	OSC	OSC input terminal	Clock signal can be obtained by internal oscillation circuit.


To P.C.B A
J117
Tuner signal (Lch)
Tuner signal (Rch)
Phono signal (Lch)
Q401~404
2SK170
FET DIFFERENTIAL AMP
D401~404
MA150
IC402
MN6631
INPUT SELECTOR
IC403
MN6631
INPUT SELECTOR
PHONO 0
TUNER 4.8V
AUX 4.8V
PHONO 4.8V
TUNER 0
AUX 4.8V
D408, 409
SVDMC911
D407
MA150
To P.C.B G
To P.C.B B
To P.C.B D
To P.C.B L
To P.C.B J
To P.C.B D
−15.2V
−15.3V
GND
IC401
SVINJ4559DSM
EQUALIZER AMP
Q405,406
2SD1011
INPUT SELECTOR MUTING
Q407
2SA564A
INPUT SELECTOR MUTING
Q410
2SA564A
SWITCHING (PHONO IND.)
Q411
2SA564A
SWITCHING (AUX IND.)
Q412
2SA564A
SWITCHING (TUNER IND.)
Q413
2SC1685
SWITCHING
Q408, 409
2SA684NC
REGULATOR
D410
MA1030L
3V ZENER
Q471~476
2SJ103
LOUDNESS SWITCH
Q477~479
2SC1685NC
SWITCHING
LOUDNESS CONTROL SWITCH CIRCUIT
IC404
MN6632
VOLUME CONTROLLER
IC405
SVINJ4562DD
DC AMP
Lch
PHONO
AUX/CD/VIDEO
REC OUT TAPE 1 PLAYBACK
REC OUT TAPE 2/EXT PLAYBACK
GRAPHIC OUT
EQUALIZER IN
Rch
PHONO
AUX/CD/VIDEO
REC OUT TAPE 1 PLAYBACK
REC OUT TAPE 2/EXT PLAYBACK
GRAPHIC OUT
EQUALIZER IN
TAPE MONITOR
GRAPHIC EQUALIZER
LOUDNESS
AUDIO MUTE
0dB
-20dB
off
on
straight
EQ
source
Tape 1 dubbing
Tape 2 rec
PHONO SELECTOR
MM
MC



■ SCHEMATIC DIAGRAM

(Equalizer/input selector control/volume control/ loudness control/dimension control)

(This schematic diagram may be modified at any time with the development of new technology.)

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

Note 2

1. **S1−1, S1−2** : Audio muting switch in "**0dB**" position.
   0dB ◄► −20dB
2. **S2−1, S2−2** : Loudness switch in "**off**" position.
   off ◄► on
3. **S3−1 ~ S3−6** : Equalizer recording mode switch in "**straight**" position.
   straight ◄► EQ
4. **S4−1 ~ S4−4** : Equalizer switch in "**off**" position.
   off ◄► on
5. **S5−1 ~ S5−3** : Tape monitor selector switch in "**source**" position.
   source ◄► tape1/dubbing 1 ▶ 2
6. **S6−1 ~ S6−3** : Tape monitor selector switch in "**source**" position.
   source ◄► tape2/ext.
7. **S7−1, S7−2** : Phono cartridge selector switch in "**MM**" position.
   MM ◄► MC
8. **S8−1 ~ S8−2** : Dimension control on/off switch in "**off**" position.
   off ◄► on
9. **S9−1, S9−2** : Tone switch in "**defeat**" position.
   defeat ◄► on
10. **S10−1, S10−2** : High-cut filter switch in "**off**" position.
    off ◄► on
11. **S11−1, S11−2** : Subsonic filter switch in "**off**" position.
    off ◄► on
12. ▭ indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the ground point taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester. (high tap)
13. ▒▒▒ Phono signal lines
14. ▬▬ Positive (+B) voltage lines
15. ——► Negative (−B) voltage lines

IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

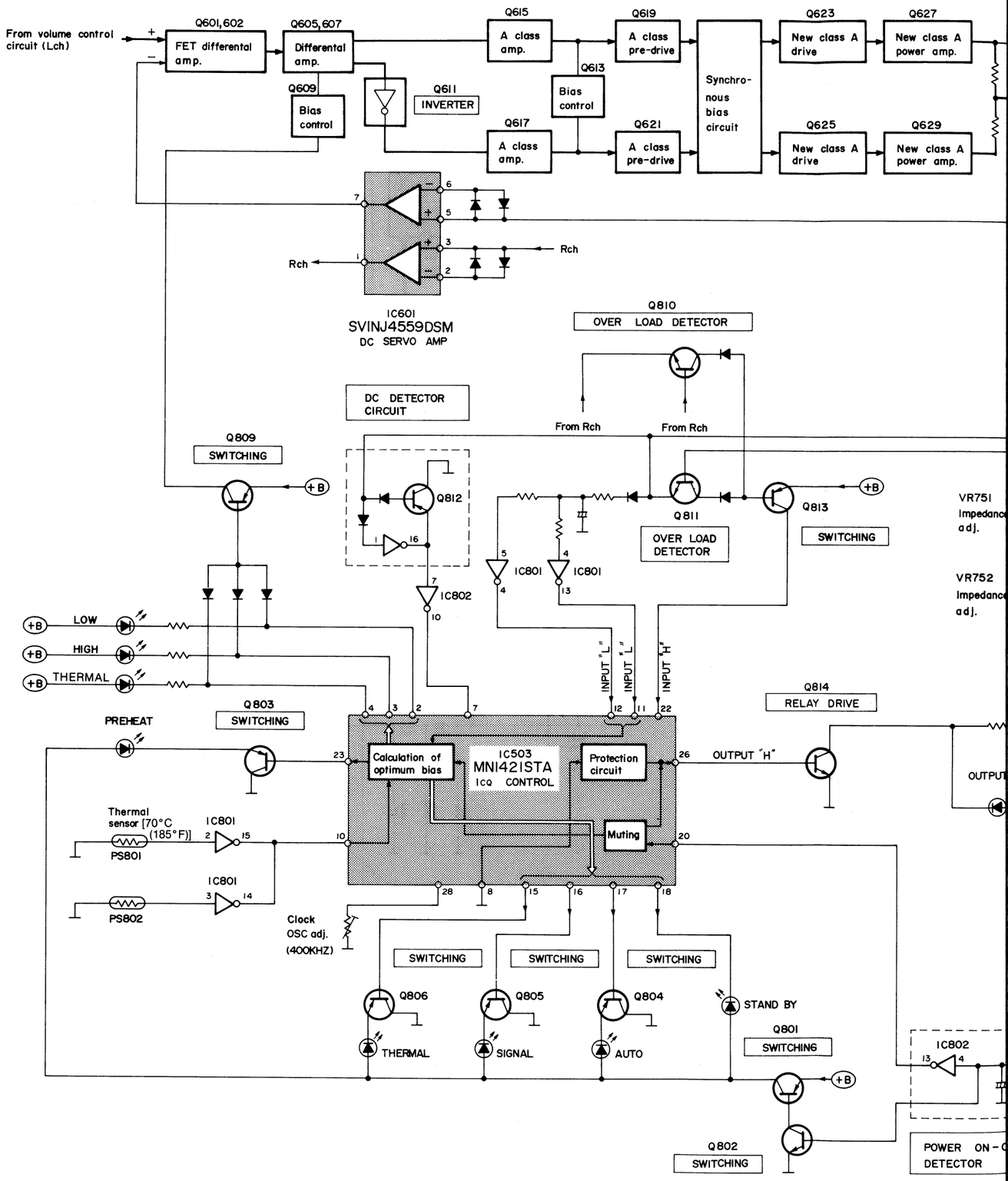
Ref. No.		Part No.	Value
CAPACITORS			
C201		ECBT1C223NY	0.022
C202	Ⓢ	ECEA1ES101	100
C203,204		ECBT1C103ZYY	0.01
C205,206		ECBT1C103ZYY	0.01
C207,208		ECBT1C103ZYY	0.01
C209	Ⓢ	ECQM1H473KV	0.047
C210		ECBT1C223NYY	0.022
C211	Ⓢ	ECCD1H120KC	12P
C212		ECQP1471JZ	470P
C213		ECBT1C223NYY	0.022
C214	Ⓢ	ECCD1H150KC	15P
C215		ECBT1H102ZXY	0.001
C216,217		ECBT1C103ZYY	0.01
C218		ECBT1C103ZYY	0.01
C219		ECBT1C223NYY	0.022
C220		ECBT1C223NYY	0.022
C221	Ⓢ	ECEA1HS100	10
C222	Ⓢ	ECEA1AS470	47
C223	Ⓢ	ECEA1HS100	10
C224	Ⓢ	ECEA1CS330	33
C225,226		ECBT1C103ZYY	0.01
C227,228		ECBT1C103ZYY	0.01
C229		ECBT1C103ZYY	0.01
C230,231	Ⓢ	ECEA50Z1	1
C232	Ⓢ	ECCD1H101K	100P
C233,234		ECBT1C103ZYY	0.01
C235		ECBT1C103ZYY	0.01
C236		ECEA50ZR47	0.47
C237		ECBT1C103ZYY	0.01
C238	Ⓢ	ECEA1HS100	10
C239		ECBT1C103ZYY	0.01
C241		ECQM1H103KV	0.01
C243	Ⓢ	ECEA50Z1	1
C244	Ⓢ	ECEA25M4R7R	4.7
C246	Ⓢ	ECEA50Z2R2	2.2
C280	Ⓢ	ECEA50Z1	1
C281		ECBT1C103ZYY	0.01
C301	Ⓢ	ECEA1CS471	470
C302	Ⓢ	ECCD1H101K	100P
C303,304	Ⓢ	ECEA1AS470	47
C305,306		ECQM1H152JZ	0.0015
C307,308	Ⓢ	ECEA50Z3R3	3.3
C309,310		ECQM1H182JZ	0.0018
C311	Ⓢ	ECEA50Z4R7	4.7
C312		ECBT1C223NYY	0.022
C313	Ⓢ	ECEA50ZR47	0.47
C314	Ⓢ	ECEA50Z1	1
C315	Ⓢ	ECEA50Z3R3	3.3
C316		ECQP1471JZ	470P
C317		ECBT1C103ZYY	0.01
C318		ECQM1H473KV	0.047

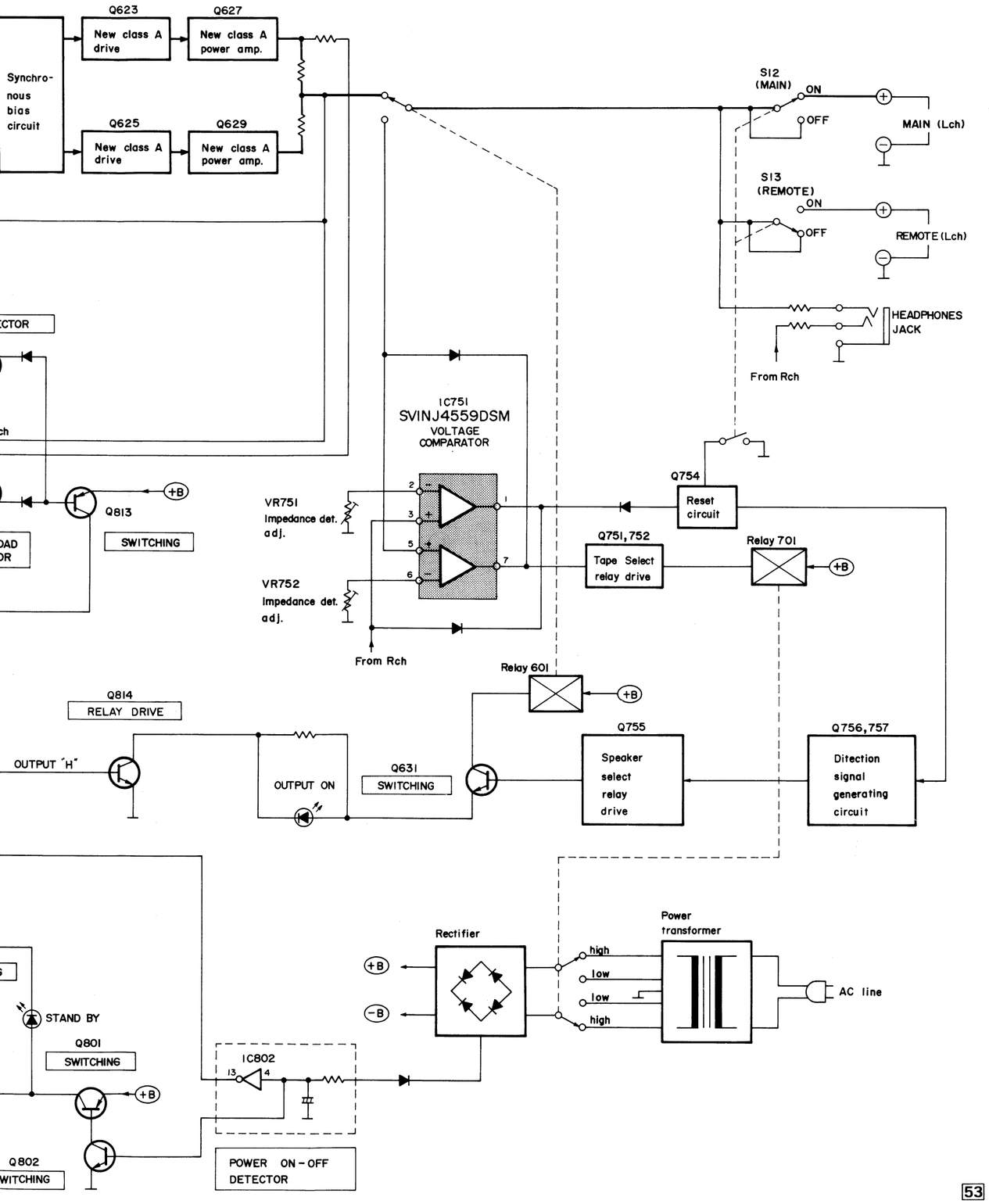
Ref. No.		Part No.	Value
CAPACITORS			
C319,320	Ⓢ	ECEA50Z3R3	3.3
C401,402		ECQM1H103KV	0.01
C403,404	Ⓢ	ECCD1H820K	82P
C405,406	Ⓢ	ECCD1H680K	68P
C407,408	Ⓢ	ECKD1H821KB	820P
C409,410	Ⓢ	ECEA0JS222	2200
C411,412		ECQP1473GZ	0.047
C413,414		ECQP1103GZ	0.011
C415,416		ECQM1H332JZ	0.0033
C417,418	Ⓢ △	ECEA1EN3R3S	3.3
C419,420		ECQM1H472JZ	0.0047
C421	Ⓢ	ECEA1ES101	100
C422	Ⓢ	ECEA1ES470	47
C423,424	Ⓢ	ECKD1H331KB	330P
C427,428		ECQM1H104KV	0.1
C429,430	Ⓢ △	ECEA1EN4R7S	4.7
C431,432	Ⓢ △	ECEA25N4R7Z	4.7
C433,434	Ⓢ	ECCD1H330K	33P
C435		ECQM1H473JZ	0.047
C436	Ⓢ	ECKD1H103ZF	0.01
C437,438	Ⓢ	ECEA50Z3R3	3.3
C439	Ⓢ	ECEA50Z3R3	3.3
C441,442	Ⓢ	ECEA1HS100	10
C443,444	Ⓢ	ECCD1H151K	150P
C445,446	Ⓢ	ECKD1H473ZF	0.047
C447	Ⓢ	ECKD1H473ZF	0.047
C448	Ⓢ	ECEA1VS330	33
C471,472	Ⓢ	ECEA50Z1	1
C473	Ⓢ	ECEA50Z1	1
C501,502	Ⓢ	ECEA50Z3R3	3.3
C503,504	Ⓢ	ECCD1H820K	82P
C505,506		ECCD1H820K	82P
C507,508		ECCD1H220K	22P
C509,510		ECQM1H223KV	0.022
C511,512		ECQM1H104KV	0.1
C513,514		ECQM1H472JV	0.0047
C515,516		ECEA50Z3R3	3.3
C517,518	△	ECEA1CN100S	10
C519,520		ECQM1H102KV	0.001
C521,522		ECEA50Z3R3	3.3
C523,524	Ⓢ	ECCD1H221K	220P
C525,526	Ⓢ	ECCD1H820K	82P
C527,528	Ⓢ	ECCD1H121K	120P
C529,530	△ Ⓢ	ECEA25N4R7	4.7
C531,532	Ⓢ	ECEA25Z4R7	4.7
C533,534		ECQM1H332KZ	0.0033
C535,536		ECQM1H333KV	0.033
C537,538		ECQM1H183KV	0.018
C539,540		ECQM1H104KV	0.1
C541,542		ECQM1H473KV	0.047
C543,544		ECQM1H223KV	0.022

Ref. No.		Part No.	Value
CAPACITORS			
C545	Ⓢ	ECEA50Z1	1
C546,547	Ⓢ	ECKD1H103ZF	0.01
C548	Ⓢ	ECKD1H223ZF	0.022
C601,602	Ⓢ	ECCD1H560K	56P
C603,604	Ⓢ	ECCD1H100KC	10P
C605,606		ECQM1H182KV	0.0018
C607,608	Ⓢ	ECEA1AS101	100
C609,610	Ⓢ	ECCD1H070CC	7P
C611,612	Ⓢ	ECCD1H070CC	7P
C613,614	Ⓢ	ECKD1H103ZF	0.01
C615,616	△ Ⓢ	ECCD1H560K	56P
C617,618	△ Ⓢ	ECCD1H560K	56P
C619,620	Ⓢ	ECEA2AS100	10
C621,622	Ⓢ	ECKD1H681KB	680P
C623,624	Ⓢ	ECKD1H681KB	680P
C625,C626 (M)		ECQM1H473KV	0.047
C625,626 (MC)		ECQM1H104KV	0.1
C627,628		ECQM1H104KV	0.1
C629,630	△	ECEA1CN100	10
C631,632	Ⓢ △	ECEA25N4R7	4.7
C633,634		ECEA2AS100	10
C635,636	Ⓢ	ECCD1H270K	27P
C640		ECQM1H473KV	0.047
C701	△	ECKDKC103PF2	0.01
C702,703	△	ECET71V153Z	15000
C704	Ⓢ	ECEA50Z1	1
C705	Ⓢ	ECEA1JS221	220
C706	△	ECKD2H103PE	0.01
C707		ECEA1HU471	470
C708		ECEA1HU222	2200
C709,710	Ⓢ	ECEA1ES101	100
C711,712	Ⓢ	ECKD1H103ZF	0.01
C713,714	Ⓢ	ECEA1VS330	33
C715,716	Ⓢ	ECEA1ES470	47
C717	△	ECEA2AS101	100
C718	Ⓢ	ECEA1HS101	100
C719		ECEA1HU471	470
C719	Ⓢ	ECKD1H103ZF	0.01
C721,722	Ⓢ	ECEA1CS330	33
C723,724	Ⓢ	ECEA1CS330	33
C725	Ⓢ	ECEA1CS330	33
C726	Ⓢ	ECKD1H103ZF	0.01
C727	Ⓢ	ECEA50Z1	1
C728	△	ECEA1HN010S	1
C729	Ⓢ	ECKD1H103ZF	0.01
C730	Ⓢ	ECEA1HS100	10
C731	Ⓢ	ECKD1H103ZF	0.01
C732	Ⓢ	ECEA1ES101	100
C733	Ⓢ	ECEA1VS102	1000
C734	Ⓢ	ECEA1VS471	470

Ref. No.		Part No.	Value
CAPACITORS			
C735	Ⓢ	ECEA1VS221	220
C736	Ⓢ	ECEA1AS101	100
C737		ECBT1C103ZY	0.01
C738	Ⓢ	ECKD1H103ZF	0.01
C739	Ⓢ	ECEA1AS101	100
C740	Ⓢ	ECEA1ES222	2200
C741	Ⓢ	ECEA1CS222	2200
C751,752		ECQM1H473KV	0.047
C753	Ⓢ	ECEA50Z1	1
C754		ECQM1H103KV	0.01
C755	Ⓢ	ECEA25Z4R7	4.7
C756		ECQM1H683KV	0.068
C801,802	Ⓢ	ECEA50Z3R3	3.3
C803,804	Ⓢ	ECEA50Z1	1
C805	△	ECEA1CN101S	100
C806	Ⓢ	ECKD1H223ZF	0.022
C807	Ⓢ	ECCD1H151K	150P
C808	Ⓢ	ECEA1HS100	10
C809	△	ECEA1EN4R7S	4.7
C810	Ⓢ	ECEA1AS221	220
C811	Ⓢ	ECEA1CS330	33
C901	Ⓢ	ECKD1H331KB	330P
C902	Ⓢ	ECEA1VS221	220
C903	Ⓢ	ECEA0JS471	470
C904	Ⓢ	ECCD1H100KC	10P
C905	Ⓢ	ECCD1H390KC	39P
C906,907		ECBT1C103ZYY	0.01
C908		ECBT1C103ZYY	0.01
C909	Ⓢ	ECEA25M4R7R	4.7
C910		ECBT1C103ZYY	0.01
C912	Ⓢ	ECEA0JS222	2200
C913	Ⓢ	ECEA1CS471	470
C914	Ⓢ	ECEA50ZR47	0.47
C915	Ⓢ	ECEA1HS100	10
C916	Ⓢ	ECEA1AS221	220
C917	Ⓢ	ECEA50Z1	1
C918,919		ECBT1C103ZYY	0.01
C920,921		ECBT1C103ZYY	0.01
C922	Ⓢ	ECEA1HS100	10
C924	Ⓢ	ECKD1H103ZF	0.01
C925,926	Ⓢ	ECEA50ZR47	0.47
C927	Ⓢ	ECEA50ZR47	0.47
C930	Ⓢ	ECEA1AS221	220
C933,934	Ⓢ	ECKD1H103ZF	0.01
C935	Ⓢ	ECKD1H472ZF	0.0047
C931	Ⓢ	ECEA50Z1	1
C950	Ⓢ	ECEA50Z1	1
C951	Ⓢ	ECCD1H101K	100P
C998	Ⓢ	ECEA1AS101	100
C999	Ⓢ	ECKD1H103ZF	0.01

■ BLOCK DIAGRAM





■ SCHEMATIC DIAGRAM Ⓒ

(ICQ controller/over load detector/main amplifier/voltage comparator circuit)

(This schematic diagram may be modified at any time with the development of new technology.)

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

Note 3.

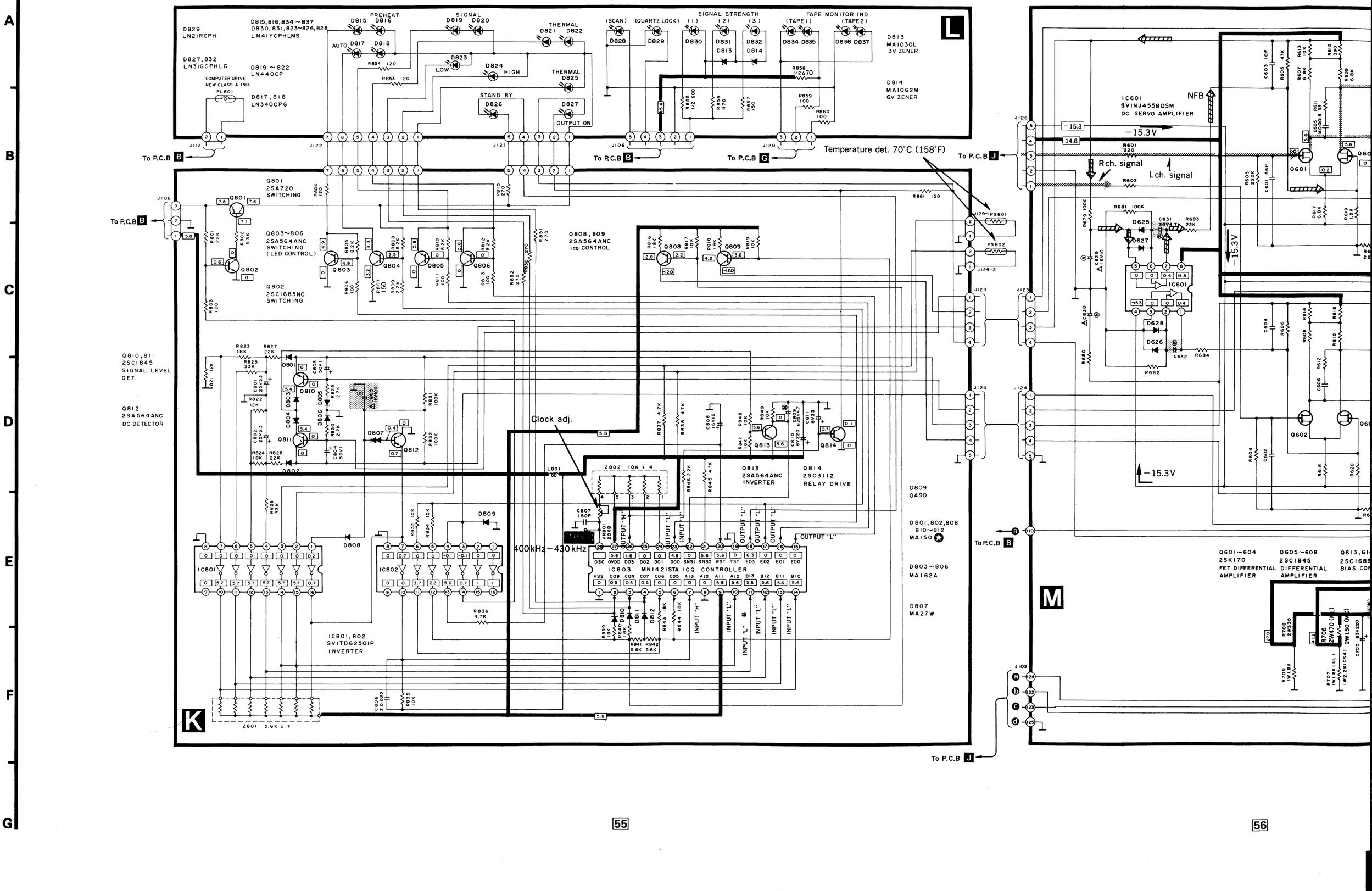
1. **S12–1 ~ S12–3** : Speaker selector (main) switch in "**on**" positon. on ◄► off
2. **S13–1 ~ S13–3** : Speaker selector (remote) switch in "**off**" position. on ◄► off
3. **S14** : Power source switch in "**on**" position.
4. ☐ indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the ground point taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester. (hgih tap)
5. ➡ Tuner signal lines (L ch.)
6. ═ Positive (+B) voltage lines
7. ⟶ Negative (–B) voltage lines

IMPORTANT SAFETY NOTICE

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

■ FUNCTION OF TERMINAL (Icq CONTROLLER IC803)

Pin No.	Mark	Name of block	Descriptionof terminal
1	V_{SS}	Power supply input terminal	Grounded (0V)
2	CO_9	Output port C	It delivers ICQ control signal through input port A (thermal sensor) and input port B (signal sensor). [Output "L"]
3	CO_8		
4	CO_7		
5	CO_6		
6	CO_5		
7	AI_3	Input port A	When DC detection circuit of power amplifier operates, the input level becomes "H".
8	AI_2		Not used in this unit.
9	AI_1		Not used in this unit (Apply 5.8V)
10	AI_0		When 60°C (122°F) sensor of power amplifier operates, the input level becomes "L".
11	BI_3	Input port B	Input level changes to "L" as effective output 2V signal sensor of power amplifier operates. (L ch.)
12	BI_2		Input level changes to "L" as effective output 5V signal sensor of power amplifier operates (L ch.)
13	BI_1		Input level changes to "L" as effective output 2V signal sensor of power amplifier operates (R ch.)
14	BI_0		Input level changes to "L" as effective output 5V signal sensor of power amplifier operates. (R ch.)
15	EO_0	Output port E	Indicator "thermal" lights up at "L" output.
16	EO_1		Indicator "signal" lights up at "L" output.
17	EO_2		Indicator "auto" light up at "L" output.
18	EO_3		Indicator "stand by" lights up at "L" output.
19	TST	Test input terminal	Terminal for testing LSI (Grounded)
20	RST	Reset input terminal	All outputs are cleared or reset with input at "L". (It is connected to power supply circuit)
21	SNS_0	Sensor input terminal	Conditional transfer (branch) is performed according to the input level.
22	SNS_1		Input level changes to "H" as power amplifier output short-circuit operates.
23	DO	Output port D	Output termina for indicator "preheat" and preheating circuit operation. [Output "L"]
24	DO_1		Not used in this unit.
25	DO_2		
26	DO_3		Output relay turns ON with output at "H"
27	VDD	Power supply input terminal	Apply 5V.
28	OSC	OSC input terminal	Clock signal (about 400 kHz) can be obtained by internal oscillation circuit.


L
D829 LN21RCPH
D815,816,834~837 D830,831,823~826,828 LN41YCPHLMS
D827,832 LN31GCPHLG
D819~822 LN440CP
D817,818 LN340CPG
COMPUTER DRIVE NEW CLASS A IND.
PL801
PREHEAT D815 D816
AUTO D817 D818
SIGNAL D819 D820
LOW D823
HIGH D824
STAND BY D826
THERMAL D821 D822
THERMAL D825
OUTPUT ON D827
R854 120
R853 120
(SCAN) D828
(QUARTZ LOCK) D829
SIGNAL STRENGTH (1) D830 (2) D831 D813 (3) D832 D814
TAPE MONITOR IND. (TAPE1) D834 D835 (TAPE2) D836 D837
R858 1/2 470
R859 100
R860 100
R855 1/2 680
R856 470
R857 150
D813 MA1030L 3V ZENER
D814 MA1062M 6V ZENER
J112
J122
J121
J106
J120
To P.C.B B
To P.C.B B
To P.C.B G
Temperature det. 70°C (158°F)
Q801 2SA720 SWITCHING
Q802 2SC1685NC SWITCHING
Q803~806 2SA564ANC SWITCHING (LED CONTROL)
Q808,809 2SA564ANC Icq CONTROL
R804 120
R815 270
R861 150
R801 22K
R802 5.3K
R803 100
R805 8.2K
R806 100
R807 150
R808 8.2K
R809 2.2K
R810 8.2K
R811 100
R812 8.2K
R813 100
R852 270
R851 270
R816 18K
R817 10K
R818 18K
R819 10K
Q801
Q802
Q803
Q804
Q805
Q806
Q808
Q809
J108
To P.C.B B
Q810,811 2SC1845 SIGNAL LEVEL DET.
Q812 2SA564ANC DC DETECTOR
R823 18K
R827 22K
R825 33K
R821 12K
R822 12K
R824 18K
R828 22K
R826 33K
C801 25V33
C802 25V33
C803 50V1
C804 50V1
C805 100V0.0068
D801
D802
D803
D804
D805
D806
D807
D808
D809
R830 2.7K
R829 2.7K
R831 100K
R832 100K
Q810
Q811
Q812
R834 10K
R833 10K
IC801
IC802
IC801,802 SVITD6250IP INVERTER
R836 4.7K
C806 0.022
R835 10K
Z801 5.6K x 7
Clock adj.
L801
Z802 10K x 4
C807 150P
VR801 20B
400kHz~430kHz
R837 4.7K
R838 4.7K
C808 16V10
R848 10K
R849 10K
R847 10K
C809 16V10
C811 6V33
C810 6V220
Q813
Q814
Q813 2SA564ANC INVERTER
Q814 2SC3112 RELAY DRIVE
R846 2.2K
R845 4.7K
IC803 MN1421STA ICQ CONTROLLER
OSC OVDD DO3 DO2 DO1 DO0 SNS1 SNS0 RST TST E03 E02 E01 E00
VSS C09 CON C07 C06 C05 A13 A12 A11 A10 B13 B12 B11 B10
OUTPUT "H"
OUTPUT "L"
INPUT "H"
INPUT "L"
R839 18K
R840 18K
R841 5.6K
R842 5.6K
R843 18K
R844 18K
D810
D811
D812
D809 0A90
D801,802,808 810~812 MA150
D803~806 MA162A
D807 MA27W
To P.C.B J
J129-1
J129-2
PS801
PS802
J123
J124
J126
J109
IC601 SVINJ4558DSM DC SERVO AMPLIFIER
NFB
−15.3V
−15.3
14.8
R601 220
R602
Rch. signal
Lch. signal
R681 100K
D625
D627
C631 25V47
R683 22K
C629 6V10
C630
IC601
D628
D626
C632
R684
R682
R680
C603 10P
R605 47K
R607 6.8K
R613 10K
R615 330
R609 6.8K
C605 400V0.0018
R611 33
C601 56P
R603 220K
R617 6.8K
R619 1.2K
Q601
Q602
C604
R606
R608
R614
R616
R610
R612
C606
R604
C602
R618
R620
−15.3V
To P.C.B B
Q601~604 2SK170 FET DIFFERENTIAL AMPLIFIER
Q605~608 2SC1845 DIFFERENTIAL AMPLIFIER
Q613,614 2SC1685 BIAS CON
M
R708 2W330
R706 2W470 (UL) 2W150 (MC)
R709 1W1.8K
R707 1W1.8K(UL) 1W2.2K(CSA)
C705 6.3V220

10 11 12 13 14 15 16 17 18 19

Icq adj. (Lch)

Icq adj. (Rch)

NFB

−15.3V

−64.1V

D601~604,607,608 625~628 MA150

D605,606,609,610 MA162A

D611,612,621~624 MA27WA

D613~620 0A90

Q609,610 2SC1685NC VOLTAGE SHIFT

Q601~604 2SK170 FET DIFFERENTIAL AMPLIFIER

Q605~608 2SC1845 DIFFERENTIAL AMPLIFIER

Q613,614 2SC1685NC BIAS CONTROL

Q611,612 2SA1123 INVERTER

Q615,616 621,622 2SA1124 PRE DRIVE

Q617,618 619,620 2SC2632 PRE DRIVE

Q623,624 2SC2592 DRIVE

Q625,626 2SA1112 DRIVE

Q627,628 2SD845 POWER AMPLIFIER

Q629,630 2SB755 POWER AMPLIFIER

D702~704,629 SVD SRIK2 RECTIFIER

D701. SVD S10VB20F RECTIFIER

RLY702 (MC) only

Q631 2SC1685NC SWITCHING (RELAY DRIVE)

Q751(SA) 2SC1509NC

Q753,755 2SC1685NC SPEAKER SELECT RELAY DRIVE

Q754 2SA564ANC RESET CIRCUIT

D752~757 MA150

Q751,752 2SC1685NC TAP SELECT RELAY DRIVE

Q756,757 2SA564A DETECTION SIGNAL GENERATING CIRCUIT

IC751 AN6552 VOLTAGE COMPARATOR

Load impedance detection adj. (Rch)

Load impedance detection adj. (Lch)

Tape select circuit adj. (R ch)

Tape select circuit adj.

TP751 TP752 TP753

MAIN Lch REMOTE SPEAKERS MAIN Rch REMOTE

HEADPHONES

TRANSFORMER

POWER

SWITCHED 100W

UNSWITCHED 150W

120V 60Hz

56 57 58

■ REPLACEMENT PARTS LIST

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The " Ⓢ " mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the column of description stand for the quantity per set.

Areas

*** [M] is available in U.S.A.**
*** [MC] is available in Canada.**

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1	SGWA1010M	Panel,Front Ass'y (1)
2	SGXA1010M	Sub Front Panel Ass'y (1)
3	SDH553-1	Reflector Plate (1)
4	SBC337-1M	Button,Power Switch (1)
5	SBC483-2	Button,Phono Selector (1)
6	SUS257	Spring,Speakers,Phono Selector (3)
7	SDU197	Filter (1)
8	SSM175-6	Meter (1)
9	SHE101	Holder,P.C.B (2)
10	SBD67	Button,Bass,Treble, Balance Dimension (4)
11	SFUMC10-23	Spacer,Volume (2)
12	SMP341-1	Reflector Plate (1)
13	SUW2067	Bracket (2)
14	SDH551	Reflector Plate (1)
15	SJT345	Crip,Fuse (2)
16	SUW2111	Bracket (1)
17	SJJ71B	Jack,Headphone (1)
18	SMX475-1	Insulation Cover (1)
19	SUW2053	Bracket (1)
20	SGX7557	Holder,Bass,Treble, Balance (1)
21	SGX7555	Holder,Dimension Control (1)
22	SGX7101	Holder,Space Dimension (1)
23	SGX7103-1	Holder,Space Dimension (1)
24	SDL39-3	Transparent Plate (1)
25	SDL41-3	Transparent Plate (1)
26	SDL43-3	Transparent Plate (1)
27	SDL45-3	Transparent Plate (1)
28	SDL47-4	Transparent Plate (1)
29	SHG433	Spacer (1)
30	SHS2445	Holder (1)
31	SUH543-1	Bracket (1)
32	SUH545	Bracket (1)
33	SUW1803	Bracket (1)
34	SUW2047	Bracket (2)
35	SBC483-2	Button,Speakers (2)
36	SKU9230-2	Bottom Board (1)
37	SKL231-1	Foot (4)
38	SGP3770A	Rear Panel (1)
39	SJF4815-2	Terminal Board,Speaker (1)
40	SJF4815-2	Terminal Board,AM Loop Antenna (1)
41	SJF4419-4	Terminal Board,Input (1)
42	SUW2049	Bracket (1)
43	SJF3057N	Terminal Board,Tape1 (1)
44	SJF3055-5N	Terminal Board,Output (1)
45(M) ⚠	RJA9Y	Cord,Power Source (1)
45(MC) ⚠	SJA109	Cord,Power Source (1)
46(M)	RHR111	Bushing (1)
46(MC)	SHR129	Bushing (1)

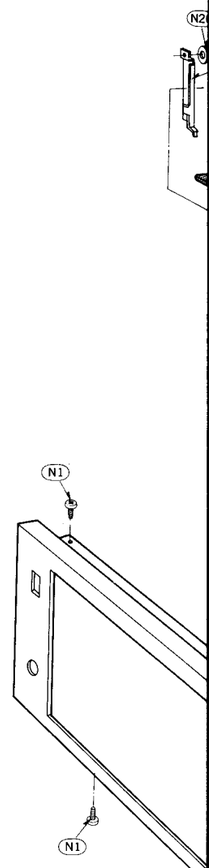
Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
47(M) ⚠	SJS9221	Socket (1)
47(MC) ⚠	SJS9223	Socket (1)
48(M)	SML115-2	Bracket (1)
48(MC)	SML115-1	Bracket (1)
49	SJB3005-1	Battery Case (1)
50	SJC7	Terminal,Battery (2)
51	SJC9	Terminal,Battery (2)
52	SMN1785-1	Bracket (1)
53	SHR9667	Spacer (1)
54	SKC770S1	Cabinet (1)
SCREWS		
N1 Ⓢ	XTB3+8BFZ	Tapping,⊕3×8 (5)
N2 Ⓢ	XTS3+8B	Tapping,⊕3×8 (7)
N3 Ⓢ	XSN3+6S	⊕3×6 (8)
N4 Ⓢ	XTB3+8B	Tapping,⊕3×8 (8)
N5 Ⓢ	XTB3+8BFZ	Tapping,⊕3×8 (3)
N6 Ⓢ	XTB3+8BFN	Tapping,⊕3×8 (6)
N7 Ⓢ	XTB4+8B	Tapping,⊕4×8 (6)
N8 Ⓢ	XTB3+8BFZ	Tapping,⊕3×8 (2)
N9 Ⓢ	XTB3+8B	Tapping,⊕3×8 (2)
N10 Ⓢ	XTB3+8BFN	Tapping,⊕3×8 (4)
N11 Ⓢ	XTB3+10BFZ	Tapping,⊕3×10 (2)
N12 Ⓢ	XTB3+8B	Tapping,⊕3×8 (4)
N13 Ⓢ	XTB3+18B	Tapping,⊕3×18 (4)
N14 Ⓢ	XTB3+8B	Tapping,⊕3×8 (4)
N15 Ⓢ	XTB3+10BFZ	Tapping,⊕3×10 (3)
N16 Ⓢ	XTB3+8BFZ	Tapping,⊕3×8 (16)
N17 Ⓢ	XTB4+8BFN	Tapping,⊕4×8 (8)
N18 Ⓢ	XTB3+8BFZ	Tapping,⊕3×8 (3)
WASHERES		
N20 Ⓢ	XWG3	Thin, ϕ3 (5)
N21 Ⓢ	XWA3B	Spring, ϕ3 (8)
N22 Ⓢ	XWG3	Thin, ϕ3 (4)
N23 Ⓢ	XWG3	Thin, ϕ3 (4)
N24 Ⓢ	XWG3	Thin, ϕ3 (3)
ACCESSORIES		
A1	SSA611-1	Loop Antenna (1)
A2	SMA231	Holder (1)
A3	SMA233-1	Holder (1)
A4	XTN3+10AFZ	Screw (2)
A5	SSA267-1	Cord (1)
A6(M)	SQF11735	Instruction Book (1)
A6(MC)	SQF11737	Instruction Book (1)
PACKING PARTS		
P1(M)	SPG4491	Carton Box (1)
P1(MC)	SPG4493	Carton Box (1)
P2	SPS3153-1	Pad,Left (1)
P3	SPS3155-1	Pad,Right (1)
P4	SPS3325	Pad,Upper (1)
P5	SPP707	Polyethylene Sheet (1)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC201	SVIUPC1018C	FM/AM IF Amp.
IC202	SVIUPC1167C2	FM IF Det.
IC301	SVIUPC1161C3	FM MPX
IC401	SVINJ4559DSM	EQ Amp.
IC402,403	MN6631	Input Selector
IC404	MN6632	Volume Controller
IC405	SVINJM4562DD	DC Amplifier
IC501～504	SVINJ4559DSM	Phase Shifter, Mixing,Buffer, Matrix
IC505	SVINJM4562DD	Flat Ampifier
IC601	SVINJ4558DSM	Dc Servo Amp
IC721	AN6875	Comparator
IC722	SVINJ4559DDM	Signal Detector
IC751	AN6552F	Voltage Comparator
IC801,802	SVITD62501P	Power ON-OFF Detector
IC803	MN1421STA	Icq Controller
IC901	SVID1707G511	PII Controller
IC902	SVIUPB553AC	Pre Scaler
IC903	SVITC5066BP	FL Driver
IC904	AN6873N	FL Driver
IC905,906	SVIUPD4011BC	OSC Scan Ind. Controller
IC951	SVITA7612AP	Indicator Drive
IC952,953	SVITD62501P	Inverter
TRANSISTORS		
Q201 Ⓢ	2SC1675-L	1st IF Amp.
Q202,206～210, 213,214,726, 727,731, 905～907,917	2SC828AQ	FM IF Band Selector,Quartz Lock Ind.
Q203,204,211, 212,303,908 Ⓢ	2SA722-S	IF Band Selector, FM/AM Band Selector, Muting Control, Switching
Q301,302 Ⓢ	2SC1383Q	Muting
Q304,732	2SK34-D1	Switching (Separation adj.)
Q401～404	2SK170-GR	Differential Amp.
Q405,406	2SD1011-T	Input Selector
Q407,410～412 Ⓢ	2SA722-S	Switching
Q408,409 Ⓢ	2SA684-RNC	Switching
Q413,501,502 Ⓢ	2SC1685-Q	Switching,Buffer
Q471～476	2SJ103-GR	Switching
Q477～479 Ⓢ	2SC1685-Q	Switching
Q503,504	2SJ103-GR	Muting,Switching
Q601～604	2SK170-GR	Differential Amp.
Q605～608	2SC1845-E	Differential Amp. Bias Control (Use pair ranks as same as Q605,606 and Q607,608)
Q609,610	2SC1685-Q	Voltage Shift
Q611,612	2SA1123-R	Inverter
Q613,614 Ⓢ	2SC1685-Q	Bias Controll
Q615,616,621,622 ⚠	2SA1124-R	Pre Drive
Q617～620	2SC2632-R	Pre Drive (Use pair ranks as same as Q615～Q622)
Q623,624	2SC2592-R	New Class A Drive
Q625,626 ⚠	2SA1112-R	New Class A Drive
Q627,628	2SD845-R	New Class A
Q629,630 ⚠	2SB755-R	New Class A (Use pair ranks as same as Q627～Q630)
Q631	2SC1685-Q	Switching
Q701,702	2SK34-D1	Regulator
Q703	2SD762-O	Regulator
Q704	2SB761-P	Regulator
Q721～725 Ⓢ	2SA684-RNC	Switching
Q728～730	2SD762-O	Regulator
Q751(M)only Ⓢ	2SC1509F-R	Tape Selector
Q752,753,755 Ⓢ	2SC1685-Q	Switching
Q754,756,757 Ⓢ 803～806,808 809,812,813	2SA722-S	Preset Circuit, Ditection Signal Generating Circuits, ICQ Control, DC Detector
Q801 Ⓢ	2SA720NC-Q	Switching

Ref. No	Part No.	Description
TRANSISTORS		
Q810,811 Ⓢ	2SC1845-E	Over Load Detector
Q814	2SC3112	Relay Drive
Q901～903 Ⓢ	2SC945-Q	Loop Filter
Q904	2SB641	Switching
Q909～911,913	2SB641	Switching
Q916	2SD661-S	Switching
Q917 Ⓢ	2SC828A-R	Buffer
Q999 Ⓢ	2SC1383Q	Regulator
DIODES		
D201～203 Ⓢ 206,209,211 212,722, 901～910 912～915 917～925 930,932	MA162A	Switching
D204 Ⓢ	SVDKV1236Z	AM Variable Capacitor
D205 Ⓢ	20A90	Detector,Bias
D401～404,407 Ⓢ	MA162A	Switching
D408,409	SVDMC911	Switching
D410	MA1030L	3V,Zener
D601～610 Ⓢ 625～628 752～757 801～806,808 810～812	MA162A	Switching
D611,612 621～624,807	MA27W-A	Bias
D613～620,809 Ⓢ	20A90	Detector,Bias
D629,702～704 ⚠	SVDSR1K2	Rectifier
D701 ⚠	SVDS10VB20F	Rectifier
D705～708,711 ⚠	SVDSR1K2	Rectifier
D709,710	MA1160H	6V,Zener
D712,713	MA1150H	15V,Zener
D721,723	SVDMZ306A	6V,Zener
D724,725	SVDMZ306C1	6V,Zener
D726,999	MA1082M	8V,Zener
D727～732 ⚠	SVDSR1K2	Rectifier
D733	LN217RP	LED(Red),Space Dimention
D813	MA1030L	3V,Zener
D814 Ⓢ	RVDRD6R2EB	6V,Zener
D815,816 823～826 828,830,831 834～837	LN41YCPHL	LED(Amber), ICQ(Preheat) Sensor,Output, Scan,Signal Strength(1),(2) Tape Monitor
D817,818	LN340CPG	LED(Green), ICQ(Auto)
D819～822	LN440CP	LED(Amber), Sensor
D827,832	LN31GCPHLG	LED(Green), Output,Signal Strength(3)
D829	LN21RCPH	LED(Red), Quartz lock
D911,931 Ⓢ	MA162A	Switching
D916	SVDMZ309A	9V,Zener
D935	MA1110L	11V,Zener
D951～954, 965～967	SVDSLV56VC3	LED(Red),Input Selector
D955～964	LN41YPHLMS	LED(Amber), Volume Level Ind.
COILS		
L202	SLA2C5-P	AM Antenna
L203	SLO2C29R-P	AM OSC
L204,205	SLQZ10G1-D	Choke
L301	SLMAIZ3-Z	AM IF
L601,602	SLQY15G-30	Choke
L801	SLQX101-3M	Choke
TRANSFORMERS		
T1 ⚠	SLT5Q131	Power Source
TRANSFORMERS		
T201	SLI2C127-M	AM IFT
T202	SLI2C413	AM IFT
T203	SLI4C541-Z	FM IFT
T204	SLI4C543-Z	FM IFT

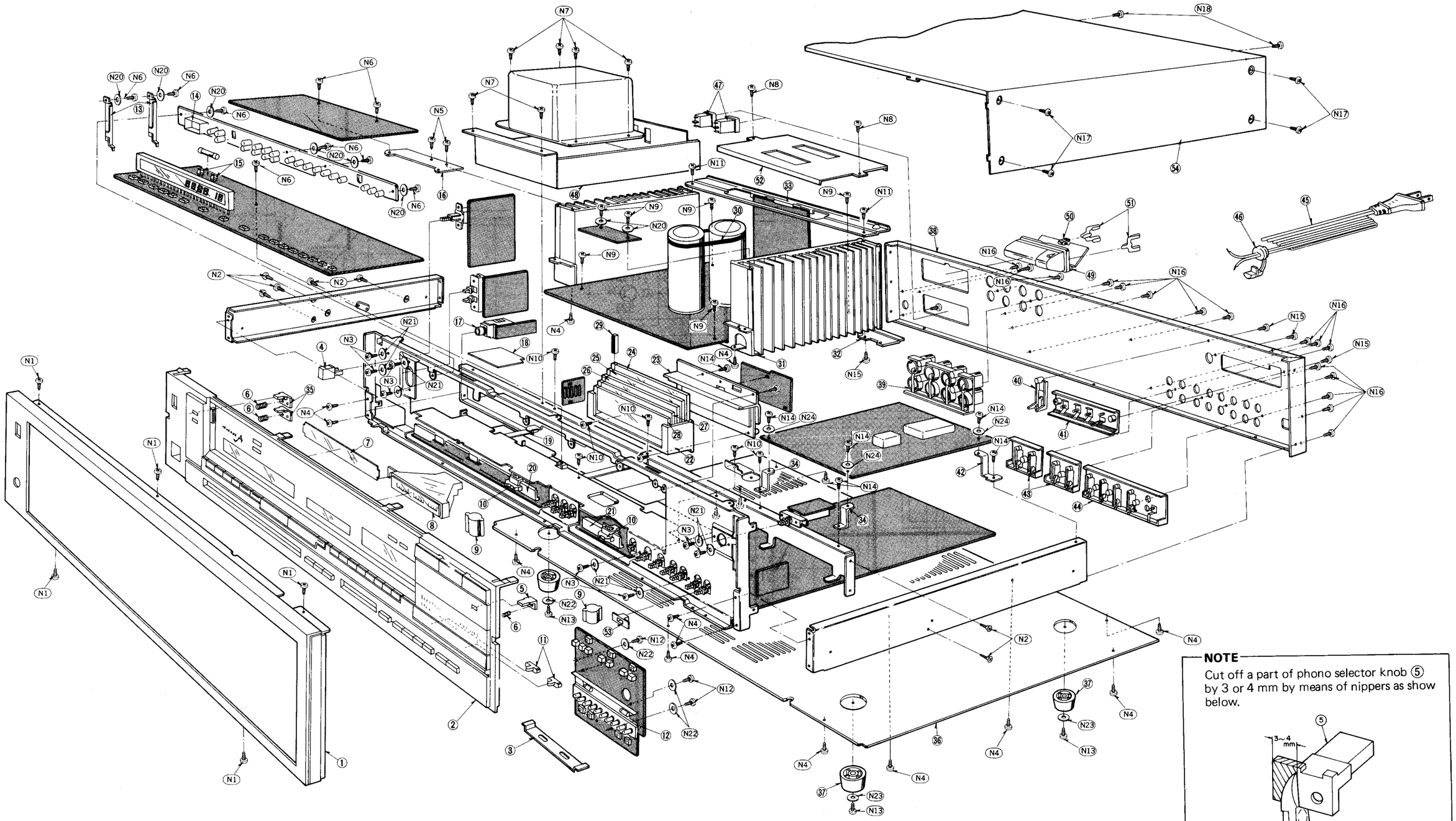
Ref. No.	Part No.	Description
FUSES		
F1 ⚠	XBA1F70NU14	125V,7A
F2 ⚠	XBA1F20NU14	125V,2A
THERMISTORS		
PS801,802	SRPBH47101	Thermal Det.
TH601,602	ERTD2ZHL103S	10kΩ
RELAYS		
RLY601 ⚠	SSY117	Speaker
RLY701(M) ⚠	SSY109-1	Tap Select
RLY701(MC) ⚠	SSY119	Tap Select
RLY702(MC) only ⚠	SSY119	Tap Select
CRYSTAL		
X901	SVQ49U452-T	4.5MHz
COMPONENT COMBINATIONS		
Z601,602	ERF3GBKR22N	3W,0.22Ω
Z701～704, 721～723 ⚠	SXRFS203ZSM	0.02μFX7
Z801	EXBP87562K	5.6kΩX7
Z802	EXBP84103J	10kΩX4
Z901	EXBP87104M	100kΩX7
Z902	EXFP7331MW	330pFX7
Z903	EXBP85104K	100kΩX5
Z951,952	EXBP87562K	5.6kΩX7
CERAMIC FILTERS		
CF201	SVFSFP450HT	AM,450KHz
CF202	SVFE107MM-A	FM,10.7MHz(Red)
	SVFE107MM-D	FM,10.65MHz (Black)
CF203,204	SVFE107MZ2-A	FM,10.7MHz(Red)
	SVFE107MZ2-D	FM,10.65MHz (Black)
CF205	SVFE107ML-A	FM,10.7MHz(Red)
	SVFE107ML-D	FM,10.65MHz (Black)
	(Use pair ranks as same as CF 202,CF 203,CF 204 and CF 205)	
VARIABLE RESISTORS		
VR201,202	EVN58AA00B54	Muting on Level Adj, 50kΩ(B)
VR301,901	EVN75AA00B53	VCO,5kΩ(B)
VR302	EVN58AA00B55	Separation Adj,500kΩ(B)
VR501	EWD00415B14S	Dimension Control,10kΩ(B)
VR502	EVD00415G15S	Balance,100kΩ(G)
VR503,504	EWD00315C15S	Tone,100kΩ(C)
VR601,602 Ⓢ	EVNM4AA00B13	ICQ L,R 1kΩ(B)
VR751,752 Ⓢ	EVNM0AA00B14	Impedance det,Adj 10kΩ(B)
VR801 Ⓢ	EVNM4AA00B24	ICQ Control Clock Adj 20kΩ(B)
VARIABLE CAPACITORS		
CT201	SVCTY121B269	Trimmer, AM Antenna
FLUORESCENT DISPLAY TUBE		
FL	SAD8MT07ZB3	Digital Frequency Display
FM FRONT END		
	SNVFE407E04	FM Front End Ass'y
PILOT LAMPS		
PL721～725	XAMR81S10	Space Dimention
PL801	XAMR68S8	New Class A
PL951	XAMR68S8	Volume Level Ind.
PL952	XAMR68S8	Volume Level Ind.
SWITCHES		
S1,2,9～11	SSH1105	Loudness
S3～6	SSH459	Graphic EQ, REC Mode
S7	SSH153	Phono Selector
S8	SSH1111	Ambience
S12,13	SSH2061	Speaker
S14 ⚠	SSH1109	Power Source
	SSG13	Band Selector

■ EXPLODE



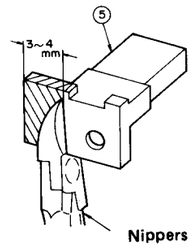
	Description
	125V,7A
	125V,2A
	Thermal Det.
	10kΩ
	Speaker
	Tap Select
	Tap Select
	Tap Select
	4.5MHz
	3W,0.22Ω
	0.02μF×7
	5.6kΩ×7
	10kΩ×4
	100kΩ×7
	330pF×7
	100kΩ×5
	5.6kΩ×7
	AM,450KHz
	FM,10.7MHz(Red)
	FM,10.65MHz
	(Black)
	FM,10.7MHz(Red)
	FM,10.65MHz
	(Black)
	FM,10.7MHz(Red)
	FM,10.65MHz
	(Black)
as same as	
3,CF 204 and CF 205)	
	Muting on
	Level Adj,
	50kΩ(B)
	VCO,5kΩ(B)
	Separation
	Adj,500kΩ(B)
	Dimension
	Control,10kΩ(B)
	Balance,100kΩ(G)
	Tone,100kΩ(C)
	ICQ L,R 1kΩ(B)
	Impedance
	det,Adj 10kΩ(B)
	ICQ Control
	Clock Adj 20kΩ(B)
	Trimmer,
	AM Antenna
	Digital Frequency
	Display
	FM Front End
	Ass'y
	Space
	Dimention
	New Class A
	Volume Level
	Ind.
	Volume Level
	Ind.
	Loudness
	Graphic EQ,
	REC Mode
	Phono Selector
	Ambience
	Speaker
	Power Source
	Band Selector

■ EXPLODED VIEWS



NOTE

Cut off a part of phono selector knob ⑤ by 3 or 4 mm by means of nippers as show below.



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